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ChatGPT v Bard v Bing v Claude 2 v Aria v human-expert. How good are AI chatbots at scientific writing? **Supplementa**

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Supplementary material for the article

Appendix A: Quantitative accuracy pp. 1-24

Appendix B: Qualitative precision pp. 25-46

Appendix C: Prompt to ChatGPT-4 in Slovenian p. 47

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Appendix A: Quantitative accuracy

Legend

Correct: Factually correct and on par with the content created by human experts.

Inadequate: Factually correct, but falls short of the content created by human experts.

Unverifiable: The statement cannot be verified or there is no expert consensus.

w/ Errors: Mostly factually correct, but with important errors that change the meaning.

Incorrect: Factually incorrect.

What is scientific explanation for migration of South Slavs in Early Middle Ages. Write 500 words using formal language and provide references where possible.

Chat GPT-3.5 (6 June 2023)¹

The migration of the South Slavs during the Early Middle Ages is a complex phenomenon that has been extensively studied by historians and scholars. It refers to the movement of Slavic peoples from their ancestral homeland in the region of present-day Ukraine and Belarus to the Balkan Peninsula in the 6th and 7th centuries. This mass migration played a crucial role in shaping the ethnic, linguistic, and cultural landscape of the Balkans. The scientific explanation for this migration involves various factors such as demographic pressures, political upheavals, and economic opportunities.

One of the key factors behind the migration of the South Slavs was demographic pressure. The ancestral homeland of the Slavs in Eastern Europe was characterized by a rapidly growing population. The available resources and agricultural land were becoming increasingly scarce to sustain the expanding population. This demographic pressure, combined with the desire for better living conditions, prompted groups of Slavic tribes to embark on a migration towards the south. They sought to establish new settlements in more fertile and less populated regions, such as the Balkans.

Political upheavals in Eastern Europe also played a significant role in the migration of the South Slavs. During the 6th and 7th centuries, the region witnessed a series of political changes and conflicts, including the expansion of the Avar Khaganate and the Byzantine Empire. These political developments disrupted the existing social and political order in the Slavic homelands, leading to increased instability and the displacement of many Slavic tribes. Some groups chose to migrate southward in search of stability and security in new territories.

Economic opportunities presented another crucial factor in the migration of the South Slavs. The Balkans offered favourable conditions for agricultural development and trade, with its fertile lands and strategic location at the crossroads of major trade routes. The South Slavs, known for their agricultural expertise, recognized the potential economic benefits of

¹ <https://chat.openai.com/share/31858cdd-4500-4024-9222-7071502b2a46>

37 settling in the Balkans. The region's natural resources, including forests, rivers, and mineral
38 deposits, further enticed the migrating Slavic tribes. The prospect of establishing prosperous
39 agricultural communities and engaging in trade motivated the South Slavs to undertake the
40 arduous journey southward.

41 It is important to note that the migration of the South Slavs was a complex and
42 multifaceted process, involving interactions with existing populations and cultures in the
43 Balkans. The arrival of the Slavs brought about significant changes in the social, linguistic,
44 and political dynamics of the region, eventually leading to the emergence of distinct Slavic
45 states and the formation of the South Slavic linguistic group.

46 Numerous scholarly works have explored the topic of South Slavic migration, providing
47 valuable insights into the historical, archaeological, and linguistic aspects of this
48 phenomenon. Some notable references that shed light on the scientific explanation for the
49 migration of the South Slavs include:

50 1. Curta, F. (2001). *The Making of the Slavs: History and Archaeology of the Lower*
51 *Danube Region, c. 500-700*. Cambridge University Press.

52 2. Fine, J. V. A. (1991). *The Early Medieval Balkans: A Critical Survey from the Sixth*
53 *to the Late Twelfth Century*. University of Michigan Press.

54 3. Barford, P. M. (2001). *The Early Slavs: Culture and Society in Early Medieval*
55 *Eastern Europe*. Cornell University Press.

56 4. Kortmann, B., & Van der Auwera, J. (Eds.). (2011). *The Languages and Linguistics of*
57 *Europe: A Comprehensive Guide*. Walter de Gruyter.²

58 These scholarly works offer in-depth analysis and scholarly interpretations of the
59 historical and sociocultural factors that contributed to the migration of the South Slavs in the
60 Early Middle Ages.

61 Chat GPT-4 (7 June 2023)³

62 The migration of the South Slavs during the Early Middle Ages, typically dated between
63 the 6th and 9th centuries AD, is a significant event in European history that shaped the
64 cultural, political, and demographic landscape of Eastern and Southeastern Europe. This
65 process, while highly complex, can be analyzed through various scientific lenses including
66 archaeology, historical linguistics, and population genetics, each offering unique insights into
67 this remarkable migratory event.

68 In archaeological terms, this migration is characterized by evidence of cultural shifts
69 seen in the material artifacts of the period. The South Slavs brought with them a distinct
70 material culture, exemplified by specific pottery styles, architectural techniques, and burial
71 customs, which gradually replaced or coexisted with those of the native populations (Curta,
72 2001). Archaeological findings, such as the assemblages from the Sclaveni and Antes
73 cultures, provide tangible evidence of these shifts.

74 Historical linguistics offers another important perspective. The spread of Slavic
75 languages across Eastern Europe is widely accepted as evidence of the South Slavs migration

² ChatGPT-3 released in November 2022 was notorious for inventing references that sounded plausible, but were not existing. We confirmed that testing in december 2022.

³ <https://chat.openai.com/share/0e620bd7-2d85-4938-835f-b7f44049883c>.

76 (Barford, 2001). The development of different dialects and the incorporation of words from
77 other languages provide clues to the movement and interactions of the South Slavs with other
78 communities.

79 Population genetics studies have become increasingly important in understanding
80 historical migrations, including that of the South Slavs. Genetic markers, particularly on the
81 Y chromosome and mitochondrial DNA, allow scientists to track lineages and population
82 movements over time (Rootsi et al., 2004). Recent studies suggest a significant gene flow
83 from the area of the historical Proto-Slavic homeland (roughly corresponding to modern-day
84 Ukraine and Eastern Poland) towards the Balkans and other parts of Southeast Europe
85 (Peričić et al., 2005).

86 Nonetheless, the migration of the South Slavs remains a multifaceted event, which
87 cannot be fully explained by a single discipline. Instead, it is the combination of
88 archaeological, linguistic, and genetic evidence that allows us to gain a comprehensive
89 understanding of this complex process. Furthermore, it's crucial to note the migration of
90 South Slavs was not a singular event, but rather a series of movements over a few centuries
91 that was likely motivated by a combination of political, economic, and environmental factors.

92 Historical and scientific research continues to shed light on the migration of the South
93 Slavs, yet gaps in our understanding persist. This migratory event serves as a reminder of the
94 complexity of human history and the multifaceted scientific approaches required to unravel it.

95 References:

96 1. Curta, F. (2001). *The Making of the Slavs: History and Archaeology of the Lower*
97 *Danube Region, c. 500–700*. Cambridge University Press.

98 2. Barford, P. M. (2001). *The Early Slavs: Culture and Society in Early Medieval*
99 *Eastern Europe*. Cornell University Press.

100 3. Rootsi, S., et al. (2004). Phylogeography of Y-chromosome haplogroup I reveals
101 distinct domains of prehistoric gene flow in Europe. *American Journal of Human Genetics*,
102 75(1), 128–137.

103 4. Peričić, M., et al. (2005). High-resolution phylogenetic analysis of southeastern
104 Europe traces major episodes of paternal gene flow among Slavic populations. *Molecular*
105 *Biology and Evolution*, 22(10), 1964–1975.

106 ChatGPT-4 w/ Bing browsing (26 June 2023)^{4,5}

107 The migration of South Slavs during the Early Middle Ages, a significant event in the
108 history of Europe, is a complex process that can be analyzed from various angles, including
109 historical, archaeological, and linguistic perspectives. Historians and scholars have proposed
110 various theories to explain this phenomenon, but a definitive consensus remains elusive due
111 to the intricate interplay of numerous factors.

112 Primarily, it is critical to note that the South Slav migration occurred in the context of
113 the broader Migration Period, a time of widespread population movements across Europe
114 from the 4th to 8th century AD. This period was characterized by the decline of the Western

⁴ <https://chat.openai.com/share/44b6b18e-7997-4c7c-a7f9-e10a3e2281b9>.

⁵ Although Bing browsing was enabled, ChatGPT did not execute the search. The description of the function is: (as of 26 June 2023).

115 Roman Empire and the expansion of various Germanic, Turkic, and Slavic tribes. The South
116 Slavs, as a part of this larger migration wave, moved from their original homeland in Eastern
117 Europe to the Balkans.

118 Several factors, both 'push' and 'pull', have been posited to explain the South Slav
119 migration. 'Push' factors refer to conditions that compelled the South Slavs to leave their
120 original homeland. These include ecological changes, population pressures, and political
121 instability in Eastern Europe. 'Pull' factors, on the other hand, are conditions that attracted the
122 South Slavs to the Balkans. These include the relative political vacuum left by the retreating
123 Roman Empire, economic opportunities, and the availability of fertile land.

124 Firstly, ecological changes may have played a significant role. There is evidence to
125 suggest that during the Early Middle Ages, there were climatic changes in Eastern Europe,
126 which could have impacted agricultural yields and forced the South Slavs to seek new lands
127 for cultivation.

128 Secondly, population pressures and political instability in their original homeland may
129 have triggered the migration. The Slavic peoples, being primarily agricultural, would have
130 been significantly affected by land scarcity. Furthermore, the political landscape of Eastern
131 Europe during this period was marred by frequent conflicts among various tribes and with
132 external powers, such as the Avars and the Byzantine Empire.

133 Lastly, the decline of the Western Roman Empire left a relative political vacuum in the
134 Balkans. The South Slavs, attracted by the availability of fertile land and economic
135 opportunities, moved into this area, where they established new political entities.

136 The archaeological and linguistic evidence supports this narrative of South Slav
137 migration. Archaeological findings, such as Slavic-style pottery and burial practices, indicate
138 a Slavic presence in the Balkans during the Early Middle Ages. Linguistic evidence, such as
139 the spread of Slavic languages and the adoption of Latin loanwords, further corroborates this.

140 In conclusion, the migration of South Slavs during the Early Middle Ages is a
141 multifaceted process that likely resulted from a combination of ecological changes,
142 population pressures, political instability, and the decline of the Western Roman Empire. It
143 represents a crucial event in the shaping of the Balkan Peninsula's demographic and cultural
144 landscape.

145

146 References

147 1. Curta, Florin (2001). *The Making of the Slavs: History and Archaeology of the Lower*
148 *Danube Region, c. 500–700*. Cambridge: Cambridge University Press.

149 2. Pohl, Walter (1998). "Conceptions of Ethnicity in Early Medieval Studies". *Debating*
150 *the Middle Ages: Issues and Readings*. Blackwell Publishers.

151 3. Hrushevskyi, Mykhailo (1997). *History of Ukraine-Rus'*. Canadian Institute of
152 *Ukrainian Studies Press*.

153

154 (Note: The actual papers/books may not contain the exact information presented in the
155 text but they are widely recognized authorities on the subject matter of Slavic migrations.)

157 The migration of South Slavs during the Early Middle Ages is a complex phenomenon
158 that can be explained through a combination of genetic, archaeological, and historical
159 evidence.

160 Genetic studies have shown that the South Slavs are a diverse group with a high degree
161 of genetic mixing, suggesting a history of migration and intermarriage with other groups. A
162 study by Mirabal et al. (2010) found that the South Slavs have a high degree of genetic
163 diversity, with significant contributions from both Eastern European and Mediterranean
164 populations[1].

165 Archaeological evidence also supports the idea of migration and cultural exchange. A
166 study by Hakenbeck et al. (2010) found evidence of a shift in burial practices among the
167 South Slavs during the Early Middle Ages, suggesting cultural changes that could be
168 associated with migration[2].

169 Historical records also provide evidence of South Slav migration during this period. The
170 South Slavs are believed to have migrated from their original homeland in Eastern Europe to
171 the Balkan Peninsula during the 6th and 7th centuries AD, a period of significant political and
172 social change in Europe. This migration was likely driven by a combination of factors,
173 including political instability, economic opportunities, and environmental changes [3].

174 In a detailed study of dietary habits and mobility in Early Medieval populations in the
175 Italian Alps, it was found that differences in subsistence are more dependent on the
176 environmental context, mainly on altitudes, rather than on cultural influences. Enriched $\delta^{15}\text{N}$
177 values are noted at higher altitudes, probably due to a diet richer in animal proteins and dairy
178 products. Differences in $\delta^{15}\text{N}$ values might also be attributed to social status when
179 considered in combination with recovered grave goods. The $\delta^{34}\text{S}$ data indicated higher
180 variability in Adige valley compared to the other areas, suggesting greater mobility in
181 Adige[4].

182 In conclusion, the migration of the South Slavs during the Early Middle Ages can be
183 explained through a combination of genetic, archaeological, and historical evidence. This
184 migration was likely driven by a complex interplay of political, economic, and environmental
185 factors.

186

187 [1]: [Mirabal et al., 2010] (<https://onlinelibrary.wiley.com/doi/pdf/10.1046/j.1469-1809.2003.00042.x>)

188 [2]: [Hakenbeck et al., 2010] (<https://figshare.com/ndownloader/files/7739344>)

189 [3]: [Curta, 2001] (<https://www.cambridge.org/core/journals/nationalities-papers/article/abs/veneti-antichi-albanesi-moderni-e-migranti-slavi-la-ricostruzione-della-migrazione-degli-slavi-nella-prima-meta-del-secolo-vii/6FD0F16B8E8BEEF8A8C6F4480D74F1F8>)

193

⁶ Extracted keywords: South Slavs, migration, Early Middle Ages. Query: South Slavs migration in Early Middle Ages.

⁷ <https://chat.openai.com/share/c39edeaf-f388-4027-909e-12c074f10182>

194 [4]: [Gismondi et al., 2020] ([https://link.springer.com/content/pdf/10.1007/s12520-019-](https://link.springer.com/content/pdf/10.1007/s12520-019-00982-6.pdf)
195 [00982-6.pdf](https://link.springer.com/content/pdf/10.1007/s12520-019-00982-6.pdf))

196 Would you like me to save these references for you?

197 Bing Chat (8 June 2023)

198 The Slavic migrations to the Balkans began in the mid-6th century and first decades of
199 the 7th century in the Early Middle Ages. The rapid demographic spread of the Slavs was
200 followed by a population exchange, mixing and language shift to and from Slavic. The
201 settlement was facilitated by the substantial decrease of the Balkan population during the
202 Plague of Justinian². Another reason was the Late Antique Little Ice Age from 536 to around
203 660 CE and the series of wars between the Sasanian Empire and the Avar Khaganate against
204 the Eastern Roman Empire².

205 The backbone of the Avar Khaganate consisted of Slavic tribes. After the failed siege of
206 Constantinople in the summer of 626, they remained in the wider Balkan area after they had
207 settled the Byzantine provinces south of the Sava and Danube rivers, from the Adriatic
208 towards the Aegean up to the Black Sea². Exhausted by several factors and reduced to the
209 coastal parts of the Balkans, Byzantium was not able to wage war on two fronts and regain its
210 lost territories so it reconciled with the establishment of Sklavinias influence and created an
211 alliance with them against the Avar and Bulgar Khaganates².

212 I'm sorry but I cannot write a 500-word response due to my chat settings. Is there
213 anything else you would like to know?

214 Source: Conversation with Bing, 08/06/2023

215 (1) Slavic migrations to the Balkans - Wikipedia.
216 https://en.wikipedia.org/wiki/Slavic_migrations_to_the_Balkans.

217 (2) Early Slavs - Wikipedia. https://en.wikipedia.org/wiki/Early_Slavs.

218 (3) South Slavs - Wikipedia. https://en.wikipedia.org/wiki/South_Slavs

219 Bing Compose (2 July 2023; settings: *professional / blog / medium*)⁸

220 The migration of the South Slavs to the Balkans is a complex historical phenomenon that
221 involved various factors and processes. The scientific explanation for this migration requires
222 the analysis of different sources and disciplines, such as history, archaeology, linguistics,
223 genetics and anthropology.

224 One of the main sources for the migration of the South Slavs is the written accounts of
225 Byzantine and other contemporary authors, who witnessed or reported the movements and
226 activities of the Slavic tribes in the 6th and 7th centuries AD. According to these sources, the
227 Slavs were a diverse group of tribal societies who lived in Central and Eastern Europe and

⁸ Bing Compose as used (Edge Version 114.0.1823.51, MacOS Ventura 13.3.1) disregarded instructions on tone and length in the prompt in favour of the preconfigured settings (e.g., short, medium, long for content length). Experimentally, we found that the used settings are generating the result most aligned with our intention regarding the length and style.

228 were known by different names, such as Veneti, Antes and Sclaveni. They were initially
229 subjects or allies of the Avars, a nomadic people who invaded the Balkans in the late 6th
230 century and challenged the Byzantine Empire. The Slavs participated in the Avar raids and
231 sieges against the Byzantine cities and fortresses, but also settled in the lands they conquered
232 or plundered, forming independent communities or principalities. Some of these Slavic
233 groups established contacts and alliances with the Byzantine Empire, while others resisted or
234 rebelled against it. [1] [2]

235 Another source for the migration of the South Slavs is the archaeological evidence,
236 which reveals the material culture and settlement patterns of the Slavic populations in the
237 Balkans. The archaeological finds show that the Slavs brought with them their distinctive
238 pottery, jewelry, weapons, tools and burial customs, which differed from those of the native
239 populations or previous invaders. The Slavs also introduced new types of settlements, such as
240 open villages, hillforts and rural hamlets, which reflected their social organization and
241 economic activities. The archaeological evidence also suggests that there was a population
242 exchange between the Slavs and the natives, involving assimilation, acculturation,
243 displacement or coexistence. [3] [4]

244 A third source for the migration of the South Slavs is the linguistic evidence, which
245 traces the origin and development of the Slavic languages and dialects in the Balkans. The
246 linguistic evidence shows that the Slavic languages belong to the Indo-European language
247 family and share a common ancestor, called Proto-Slavic, which was spoken by the early
248 Slavs in Eastern Europe. The Proto-Slavic language underwent several changes and splits
249 over time, resulting in different branches and groups of Slavic languages, such as East Slavic,
250 West Slavic and South Slavic. The South Slavic languages include Bulgarian, Macedonian,
251 Serbian, Croatian, Slovenian and others, which developed from a common dialectal
252 continuum that emerged in the Balkans after the migration of the South Slavs. The linguistic
253 evidence also indicates that there was a language shift to or from Slavic among some
254 populations in the Balkans, influenced by factors such as geography, politics, religion and
255 culture. [5] [6]

256 In conclusion, the migration of the South Slavs to the Balkans was a multifaceted
257 process that involved demographic, political, cultural and linguistic changes in the region.
258 The scientific explanation for this migration requires a multidisciplinary approach that
259 combines different sources and methods of research.

260 **References:**

261 [1] *Early Slavs* - Wikipedia https://en.wikipedia.org/wiki/Early_Slavs

262 [2] *Slavs, medieval migration* - ResearchGate
263 https://www.researchgate.net/publication/313999558_Slavs_medieval_migration

264 [3] Florin Curta (2001). *The Making of the Slavs: History and Archaeology of the*
265 *Lower Danube Region c.500-700*. Cambridge University Press.

266 [4] Sebastian Brather (2004). *Ethnische Interpretationen in der Frühgeschichtlichen*
267 *Archäologie: Geschichte, Grundlagen und Alternativen*. Walter de Gruyter.

268 [5] Paul Barford (2001). *The Early Slavs: Culture and Society in Early Medieval*
269 *Eastern Europe*. Cornell University Press.

270 [6] Jürgen Udolph (1997). *Studien zu slavischen Gewässernamen und*
271 *Gewässerbezeichnungen: ein Beitrag zur Frage nach der Urheimat der Slawen*. Verlag der
272 *Sächsischen Akademie der Wissenschaften*.

273 Bard (8 June)

274 The migration of the South Slavs in the Early Middle Ages was a complex event with
275 many causes. Some of the most important factors include:

- 276 • **The collapse of the Western Roman Empire.** The fall of the Western Roman
277 Empire in the 5th century created a power vacuum in Central and Eastern Europe.
278 This allowed the Slavs to expand into the region, which was previously under Roman
279 control.
- 280 • **The Hunnic invasions.** The Huns were a nomadic people who invaded Central and
281 Eastern Europe in the 4th and 5th centuries. They forced many people, including the
282 Slavs, to migrate to new areas.
- 283 • **The Avar Khaganate.** The Avars were a nomadic people who established a
284 khaganate in Central Europe in the 6th century. They allied themselves with the Slavs
285 and helped them to expand into the Balkans.
- 286 • **The Plague of Justinian.** The Plague of Justinian was a major epidemic that struck
287 the Roman Empire in the 6th century. It is estimated that the plague killed up to half
288 of the population of the empire. This created a demographic void that the Slavs were
289 able to fill.
- 290 • **The Late Antique Little Ice Age.** The Late Antique Little Ice Age was a period of
291 cooling that occurred in the 6th and 7th centuries. It is believed that this period of
292 climate change may have led to crop failures and famine, which may have forced
293 people to migrate in search of food.

294 The migration of the South Slavs had a profound impact on the Balkans. The Slavs
295 brought their own language, culture, and religion to the region, and they eventually displaced
296 the native populations. The Slavic languages are now spoken by the majority of people in the
297 Balkans, and the region's culture is heavily influenced by Slavic traditions.

298 References

- 299 • Barford, P. M. *The Early Slavs: Culture and Society in Early Medieval Europe.*
300 Cambridge University Press, 2001.
- 301 • Curta, Florin. *The Making of the Slavs: History and Archaeology of the Early Slavs.*
302 Cambridge University Press, 2001.
- 303 • Ward-Perkins, Bryan. *The Fall of Rome: A New History.* Oxford University Press,
304 2005.

305 Aria (22 June 2023)

306 The migration of [South Slavs]⁹ in Early Middle Ages has been a topic of interest for
307 historians and scholars for many years. The South Slavs, also known as the Slavic peoples,
308 migrated from the [Carpathian Mountains]¹⁰ in Eastern Europe to the [Balkans]¹¹ in the 6th

⁹ (<https://www.google.com/search?q=South%20Slavs>)

¹⁰ (<https://www.google.com/search?q=Carpathian%20Mountains>)

¹¹ (<https://www.google.com/search?q=Balkans>)

309 and 7th centuries. This migration had a significant impact on the development of the region
310 and its people, and has been the subject of much debate and speculation.

311 One of the primary reasons for the migration of the South Slavs was the pressure from
312 other tribes and peoples in Eastern Europe. The [Avars]¹², a nomadic people from Central
313 Asia, had established a powerful empire in Eastern Europe in the 6th century. The Avars
314 were known for their aggressive expansion and raids, and they put pressure on the
315 surrounding tribes to migrate or be conquered. This pressure likely contributed to the
316 migration of the South Slavs to the Balkans, where they could establish a new homeland
317 away from the Avars.

318 Another important factor in the migration of the South Slavs was the political instability
319 and fragmentation of the Eastern European region at the time. The collapse of the [Western
320 Roman Empire]¹³ had left a power vacuum in the region, and various tribes and peoples were
321 vying for control. The South Slavs likely saw the Balkans as an opportunity to establish a
322 new homeland and gain more political power and autonomy.

323 Additionally, the South Slavs were attracted to the fertile land and favorable climate of
324 the Balkans. The region offered many opportunities for agriculture and trade, and the South
325 Slavs were able to establish a prosperous society in the region.

326 There is also evidence to suggest that the migration of the South Slavs was driven by
327 cultural and religious factors. The South Slavs were pagans at the time of their migration, but
328 they quickly adopted [Christianity]¹⁴ after their arrival in the Balkans. This suggests that they
329 may have been attracted to the Christian culture and traditions of the region.

330 In conclusion, the migration of the South Slavs in Early Middle Ages was likely driven
331 by a combination of political, economic, and cultural factors. The pressure from other tribes
332 and peoples in Eastern Europe, the political instability of the region, and the attractive land
333 and climate of the Balkans all played a role in the migration. Additionally, the cultural and
334 religious traditions of the region may have played a role in the South Slavs' decision to
335 migrate. Further research is needed to fully understand the motivations and causes of this
336 migration.

337 References:

338 - Curta, F. (2013). The making of the Slavs: history and archaeology of the Lower Danube Region, c. 500-
339 700. Cambridge University Press.

340 - Fine, J. V. A. (1991). The early medieval Balkans: a critical survey from the sixth to the late twelfth
341 century. University of Michigan Press.

342 - Obolensky, D. (1971). The Byzantine Commonwealth: Eastern Europe, 500-1453. Praeger.

343 Claude 2 (26 July 2023)

344 Here is a 497 word essay on the scientific explanation for the migration of South Slavs in
345 the Early Middle Ages:

346

¹² (<https://www.google.com/search?q=Avars>)

¹³ (<https://www.google.com/search?q=Western%20Roman%20Empire>)

¹⁴ (<https://www.google.com/search?q=Christianity>)

347 The migration of Slavic peoples into the Balkan peninsula during the Early Middle Ages
348 (c. 500-1000 CE) was a significant historical event that reshaped the ethnic and political
349 landscape of Europe. From a scientific perspective, the Slavic migrations can be explained
350 through a combination of push and pull factors.

351 Archaeological evidence indicates that the original homeland of the South Slavs was in
352 the area north and east of the Carpathian Mountains, known as the Slavic Urheimat.
353 Environmental and demographic pressures likely encouraged Slavic groups to venture south
354 and west into new territories. Northern and Eastern Europe became drier during the late 5th
355 and 6th centuries CE, impacting agriculture and food supply in Slavic homelands. Growing
356 population density also strained resources. These push factors initiated migrations in search
357 of more favorable environmental and economic conditions to the south and west.

358 The Balkan peninsula at this time presented an attractive target for migration and
359 settlement. The withdrawal of Roman imperial authority in the area created a power vacuum,
360 enabling incoming Slavs to establish new autonomous chiefdoms without centralized control.
361 Geographic proximity to the Slavic homelands enabled feasible migration. Furthermore, the
362 milder climate and fertile agricultural land in the Balkan peninsula served as pull factors for
363 Slavic settlers seeking better opportunities.

364 Archaeology provides material evidence of Slavic migration into the Balkans during this
365 period. Distinctively Slavic pottery, ornaments, architecture, and funerary customs appear in
366 parts of the Balkans from the late 6th century CE, indicating steady migration and integration
367 of Slavs with indigenous Illyrian, Thracian, and Romanized populations. Linguistic evidence
368 also demonstrates the spread of Slavic languages southwards.

369 From a scientific perspective, the Slavic migrations exemplify the complex interplay
370 between environmental, demographic, social, and political factors that spur human migration.
371 While the exact triggers remain debated by scholars, an interdisciplinary analysis using
372 archaeology, linguistics, climate data, and historical texts provides a robust explanation of
373 this major ethnographic shift in the Early Middle Ages.

374

375 References:

376 Curta, Florin. *The Making of the Slavs: History and Archaeology of the Lower Danube*
377 *Region, c. 500–700*. Cambridge: Cambridge University Press, 2001.

378 Fine, John V. A., Jr. *The Early Medieval Balkans: A Critical Survey from the Sixth to*
379 *the Late Twelfth Century*. Ann Arbor: University of Michigan Press, 1983.

380 Human expert (B. Štular; 8 June 2023)

381 Ancient Slavs is a complex subject and the complexity begins with the definition of the
382 term. For a linguist, "ancient" means something different than for an archaeologist. And to
383 archaeologists, who adhere to different hypotheses, the term "Slavs" means everything from
384 an ancient people that can be traced back to deep prehistory to a whim of a Byzantine scribe.
385 A recent study (1), based on the convergence of evidence from archaeology, linguistics, and
386 population genetics, identified a particular group of migrants as people who spoke Slavic and
387 had a specific ancestry common only to present-day speakers of Slavic. We extend this
388 definition to the term Slavs used in the context of the Early Middle Ages.

389 The rapid expansion of the Slavs between about 400 and 850 CE is also a controversial
390 topic, for two main reasons. First, there are no first-hand written sources from before the end
391 of the 9th century. Second, the archaeological evidence on this subject is sparse compared to
392 many other Early Medieval "peoples". Currently, there are three main hypotheses.

393 *Urheimat.* The first assumes that the Slavs moved in all directions from their small
394 original habitat, the so-called *Urheimat*. This hypothesis is a century old, but there have been
395 enormous advances in terms of archaeological data collected and also in terms of
396 methodology. By the mid-1990s, the immutability of ethnic identity was questioned and the
397 field was moving away from the perception of the ancient Slavs as an ethnic group and
398 instead viewing them as a language-based identity group (2).

399 *Diffusion.* The second hypothesis assumes the diffusion of the Slavic cultural model
400 among non-Slavic populations or, in its extreme form, the diffusion of language alone. The
401 watershed event for this hypothesis was "The Making of the Slavs" (3). The book was based
402 on a methodological and deconstructive historiography, underpinned by the application of
403 anthropological analogy in the interpretation of archaeological information. Using these
404 methods, the famous "The Germanic world was ... (a) creation of Roman political and
405 military genius" by P. Geary was rewritten as "(Being Slav) was ... an identity formed in the
406 shadow of Justinian's forts..."

407 In the last two decades, this hypothesis has been comprehensively refuted (4), for by
408 focussing on ethnicity (no longer a common topic in studies of the ancient Slavs since the
409 1990s) it was flawed in its foundations. The result was predetermined by the methodology,
410 which defined the ancient Slavs as a polity. Another criticism of this hypothesis comes from a
411 postcolonial perspective. Indeed, the colonial attitude of this book is already evident in the
412 title, which assigns a passive role to the Slavs.

413 Regardless of how short-lived this hypothesis was, it succeeded in beginning the process
414 of deconstructing the grand narrative of the mass migration of the ancient Slavs and placing
415 more emphasis on methodology and underlying theory.

416 *Hybrid.* The hybrid hypothesis states that movement, cultural diffusion, and language
417 diffusion occurred simultaneously. This is supported by recent research in population
418 genetics, linguistics, and archaeology. It seems that language spread in the West Slavic zone
419 was mainly caused by migration to sparsely populated areas and in the East Slavic zone by a
420 combination of migration and language shift. The spread in the South Slavic region (Balkans)
421 was triggered by migration, but the main mechanism for further spread was language shift
422 from local Balkan idioms to Slavic (1, 4).

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437

438

439 What is scientific explanation for the settlement of Alpine Slavs in
440 Early Middle Ages? Write 500 words using formal language and
441 provide references where possible.

442

443 Chat GPT-3.5 (7 June 2023)¹⁵

444 The settlement of Alpine Slavs in the Early Middle Ages can be understood through a
445 combination of historical, archaeological, and linguistic evidence. This phenomenon is a
446 complex one, influenced by various factors including political, economic, and social
447 dynamics. In order to provide a scientific explanation for this historical event, it is essential to
448 examine the available evidence and consider multiple perspectives.

449 The Alpine Slavs, also known as the Slavic tribes of the Eastern Alps, began to settle in
450 the region during the 6th and 7th centuries. This migration is believed to have been driven by
451 a combination of push and pull factors. On one hand, the collapse of the Western Roman
452 Empire and the subsequent power vacuum created opportunities for new groups to establish
453 themselves in previously Roman-controlled territories. On the other hand, the Alpine region
454 offered attractive features such as fertile lands, natural resources, and strategic advantages for
455 defense and trade.

456 One of the primary sources of evidence for the settlement of Alpine Slavs comes from
457 archaeological findings. Excavations have revealed the presence of Slavic material culture,
458 such as pottery, weapons, jewelry, and settlements, in various parts of the Eastern Alps.
459 These findings provide tangible evidence of Slavic presence and help to establish the
460 chronology and distribution of their settlements. For example, the discovery of Slavic
461 cemeteries with distinctive burial practices helps to identify specific Slavic communities and
462 their cultural practices.

463 Linguistic evidence also plays a crucial role in understanding the settlement of Alpine
464 Slavs. The study of Slavic languages provides insights into the origin and migration patterns
465 of these tribes. Linguistic research suggests that the Alpine Slavs likely originated from
466 regions further east, such as Carantania (present-day Slovenia) and Pannonia (parts of
467 present-day Austria, Hungary, and Croatia). The Slavic language family, to which the Alpine
468 Slavic dialects belong, is a branch of the Indo-European language family. By tracing
469 linguistic similarities and changes, scholars can reconstruct the historical migrations and
470 interactions of these populations.

471 Historical accounts from the Early Middle Ages also provide valuable information about
472 the settlement of Alpine Slavs. Chronicles and annals, such as the works of Fredegar and Paul
473 the Deacon, mention the arrival and activities of Slavic tribes in the region. These written
474 sources often provide insights into the relationships between the Slavs and other
475 contemporary groups, such as the Lombards and the Avars, as well as the political and
476 military events of the time.

477 It is important to note that the settlement of Alpine Slavs was not a homogenous process.
478 Different Slavic tribes established themselves in various parts of the Eastern Alps, and their
479 interactions with pre-existing populations varied. Some areas experienced peaceful

¹⁵ <https://chat.openai.com/share/8860fa81-71ed-4f55-80d0-17c92fa613d6>.

480 coexistence and cultural exchange, while others witnessed conflicts and power struggles. The
481 dynamics of the settlement also evolved over time, as political entities emerged and
482 assimilation processes occurred.

483 In conclusion, the settlement of Alpine Slavs in the Early Middle Ages was a complex
484 phenomenon influenced by a range of factors. The evidence from archaeology, linguistics,
485 and historical accounts provides insights into the motivations and processes behind this
486 migration. However, it is essential to approach the topic with caution, as gaps in the evidence
487 and the interpretation of available sources can present challenges. Further research and
488 interdisciplinary collaboration are necessary to refine our understanding of this historical
489 event.

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492 *Danube Region, c. 500-700*. Cambridge University Press.

493 2. Florin Curta (Ed.). (2017). *The Slavic World*. Routledge.

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495 *Ages: An Archaeology Perspective*

496 Chat GPT-4 (7 June 2023)¹⁶

497 The early settlement of the Alpine Slavs during the Middle Ages is a topic of
498 considerable historical interest. It represents a period of profound cultural shift and
499 geopolitical change in the region which has shaped its identity to this day. While specific
500 scientific explanations are challenging due to the limited physical and written records from
501 the era, several factors related to geography, climate, socio-economic pressures, and political
502 conditions are considered relevant.

503 At the end of the Late Antique period, around the 6th century, the Roman Empire, which
504 had hitherto dominated much of the European continent, was in decline. This transition led to
505 considerable socio-political upheaval and presented opportunities for groups like the Slavs to
506 expand their territories (Curta, 2001). The region of the Eastern Alps, characterized by fertile
507 valleys and defendable highlands, likely appeared as an attractive option for these migrating
508 communities.

509 Climate change is another key factor. The period between 300 and 700 AD, known as
510 the Late Antique Little Ice Age, was marked by cooler and more volatile weather conditions
511 (Büntgen et al., 2016). This may have compelled the Slavs to move to more habitable areas
512 like the Alpine regions, where they could leverage its unique topography for survival.

513 Additionally, the Roman Empire's dissolution left a power vacuum and a lack of
514 infrastructure that groups such as the Slavs could fill. According to Pohl (1998), the Slavs,
515 being less centralized and more flexible in their socio-political structure than the Romans,
516 were more capable of adapting to the new challenges posed by the physical and political
517 environment. The Slavs' tradition of farming also aligned well with the Alpine terrain,
518 making it an optimal choice for settlement.

519 Finally, the settlement of the Alpine Slavs also resulted from processes of cultural
520 assimilation and intermarriage with the local Romano-Celtic population. The evidence of

¹⁶ <https://chat.openai.com/share/e9788229-ecel1-4df7-b5ad-cff3e00551e9>.

521 mixed Slavic-Romance place names in the Eastern Alps implies a peaceful and gradual
522 integration of these different ethnic groups (Udolph, 1994).

523 In summary, the settlement of the Alpine Slavs in the Early Middle Ages was likely the
524 outcome of a convergence of multiple factors including geographical opportunities, climate
525 change, socio-economic changes, political conditions, and cultural assimilation. While much
526 of this period remains shrouded in the mists of time, modern archaeological and linguistic
527 research provides key insights into the scientific explanations for this fascinating chapter of
528 European history.

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539 ChatGPT-4 w/ Bing search (26 June)¹⁷

540 The settlement of the Eastern Alps by the early Slavs occurred between the 6th and 8th
541 centuries, as part of the southward expansion of the early Slavs. This migration is understood
542 to have shaped the South Slavic group, and ultimately led to the ethnogenesis of present-day
543 Slovenes. The territories in question span modern-day Slovenia, Eastern Friuli, and
544 significant portions of contemporary Austria.¹⁸

545 The migration of Slavic peoples from their homeland began in the late 4th to early 5th
546 century, spurred by the arrival of the Huns in Eastern Europe and Germanic peoples'
547 incursions into the territory of the Roman Empire. During this period, Slavic tribes became
548 part of various alliances with the Germanic (Lombards, Gepids) and Eurasian (Avar, Bulgar)
549 peoples.¹⁹

550 Such sources include the *Historia Langobardorum* by Paulus Diaconus and letters from
551 Pope Gregory I. Another crucial piece of evidence is the progressive decline of ancient
552 Christian dioceses in the respective areas, corresponding with the advance of the Slavs. The
553 Alpine Slavs, including the Carantians, mainly originated from the Prague-Korchak culture
554 of Slavs

¹⁷ <https://chat.openai.com/share/93a78773-1d35-4176-854e-c26dc6223761>.

¹⁸ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

¹⁹ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

555 The first phase of Slavic settlement in the Eastern Alps, dated around 550, originated in
556 modern-day Moravia, from where Slavs moved southward into the former Roman province
557 of Noricum (modern-day Upper and Lower Austria regions), the 8th century.²⁰

558 During the 6th century, the ancestors of the Slovenes, now referred to by historians as
559 Alpine Slavs or proto-Slovenes, migrated up the Sava, Drava, and Mura river. Our
560 understanding of the Slavic settlement in the Eastern Alps derives primarily from
561 archaeological evidence, ethnographic traces, historical linguistics (including toponymy), and
562 early historical sources.

563 and were significantly influenced by the Bijelo Brdo culture of the Pannonian Slavs in
564 the 10th century.²¹

565 This movement expanded along the valleys of Alpine rivers towards the Karawanks
566 range and Poetovio (modern-day Ptuj), with the decline of the local diocese recorded before
567 577.²²

568 The second phase of Slavic settlement began after the Lombards retreated into Northern
569 Italy in 568. The Lombards agreed to cede relinquished territories to their new allies, the
570 Avars, who became nominal rulers of both the Pannonian plain and the adjacent Eastern Alps
571 region. By 600, the Slavs had pushed through Istria and the Karst region towards Italy.²³

572 The settlement process was furthered by German colonization of Austria, leading Slavs
573 to settle the entire Kras and the Gail valley between 600 and the 8th century. From there, they
574 penetrated Friuli in Val Canale and the secondary valleys, advancing even into the valleys of
575 the Degano, But, and Tagliamento rivers. Other areas of Slavic penetration included the
576 valleys of the Isonzo and Vipava rivers, with Slavs entering these areas in valleys into the
577 Eastern Alps and the Karst. Upon their arrival, they absorbed the existing Romano-Celtic-
578 Illyrian cultures.²⁴

579 In conclusion, the settlement of the Alpine Slavs in the Early Middle Ages can be
580 understood through a combination of political, cultural, and geographical factors. The
581 migrations were sparked by larger geopolitical shifts, including the movements of the Huns
582 and Germanic tribes, and the dissolution of the Roman Empire. The Slavic tribes then
583 adapted to and absorbed aspects of the cultures they encountered, leaving a lasting impact on
584 the region.

²⁰ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

²¹ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps

²² https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

²³ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

²⁴ <https://www.britannica.com/topic/Alpine-Slav>.

585 ChatGPT-4 w/ ScholarAI²⁵ (26 June 2023)²⁶

586 The settlement of the Alpine Slavs in the Early Middle Ages is a topic of considerable
587 historical and archaeological interest. The Slavic migration into the Alpine region was
588 influenced by a variety of factors, including socio-political dynamics, environmental
589 conditions, and cultural practices.

590 One of the key factors that facilitated the Slavic settlement in the Alpine region was the
591 decline of the Roman Empire. The weakening of Roman control over the region created a
592 power vacuum that the Slavs, among other groups, were able to exploit. The Slavs migrated
593 into the region, establishing settlements and gradually assimilating with the local population.

594 The Slavs' agricultural practices also played a significant role in their settlement. The
595 Slavs practiced a form of agriculture that was well-suited to the Alpine environment. They
596 cultivated a variety of crops, including cereals and legumes, and raised livestock. These
597 agricultural practices enabled the Slavs to establish stable, self-sustaining communities in the
598 region.

599 Cultural practices and beliefs also influenced the Slavic settlement. The Slavs' religious
600 and magical practices, for example, were deeply intertwined with their everyday life and their
601 relationship with the natural environment. Archaeological evidence suggests that the Slavs
602 used amulets and other symbolic objects for protection against hostile forces and to imbue
603 themselves with the characteristics of certain animals. These practices may have helped the
604 Slavs to navigate the challenges of their new environment and to establish a sense of
605 belonging and identity in the region.

606 The Slavs' settlement in the Alpine region was not a singular event, but a complex
607 process that unfolded over several centuries. It was shaped by a multitude of factors, from the
608 broad socio-political dynamics of the time to the specific cultural practices and beliefs of the
609 Slavic people. Understanding this process requires a multidisciplinary approach, drawing on
610 historical, archaeological, and anthropological research.

611 For more detailed information, please refer to the following source: [Kajkowski, K.
612 (2013). The boar in the symbolic and religious system of the Baltic Slavs in the early Middle
613 Ages. *Studia Mythologica Slavica*, 16, 9-28.] ([https://ojs.zrc-](https://ojs.zrc-sazu.si/sms/article/download/1584/1326)
614 [sazu.si/sms/article/download/1584/1326](https://ojs.zrc-sazu.si/sms/article/download/1584/1326))

615 Please note that there was an error while trying to save the citation to Zotero. Would you
616 like me to try again or proceed differently?

617 Bing Chat (8 June)

618 The rapid expansion of the Slavic speakers in the second half of the first millennium CE
619 remains a controversial topic in archaeology. Currently, there are three main hypotheses for
620 this expansion. The aim of a paper published by Benjamin Štular et al. was to test the so-

²⁵ Request to ScholarAI: { "keywords": "Alpine Slavs, settlement, Early Middle Ages", "query": "Alpine Slavs settlement in Early Middle Ages", "sort": "cited_by_count" }. Response from ScholarAI returned the following articles: doi:10.1080/14614103.2021.1911768; doi:10.5194/soil-7-269-2021; doi:10.3986/SMS.V15I1.1584; doi:10.1007/s12520-020-01103-4. ScholarAI retrieved the content of the following article: doi:10.3986/SMS.V15I1.1584.

²⁶ <https://chat.openai.com/share/b516ab80-033d-431d-a0c7-ff975b5552f2>.

621 called “hybrid hypothesis,” which states that the movement of people, cultural diffusion and
622 language diffusion all occurred simultaneously¹.

623 For this purpose, they examined an archaeological Deep Data set with a machine
624 learning method termed time series clustering and with emerging hot spot analysis. As a
625 result, they were able to detect two migrations in the Eastern Alps between c. 500 and c. 700
626 CE. Based on the convergence of evidence from archaeology, linguistics, and population
627 genetics, they have identified the migrants as Alpine Slavs, i.e., people who spoke Slavic and
628 shared specific common ancestry¹.

629 I'm sorry but I cannot write a 500-word response due to my chat settings. Is there
630 anything else you would like to know?

631 Source: Conversation with Bing, 08/06/2023

632 (1) Migration of Alpine Slavs and machine learning: Space-time ... - PLOS.
633 <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0274687>.

634 (2) Early Slavs - Wikipedia. https://en.wikipedia.org/wiki/Early_Slavs.

635 (3) Alpine Slav | people | Britannica. <https://www.britannica.com/topic/Alpine-Slav>.

636 Bing Compose (2 July 2023; settings: *professional / blog / medium*)²⁷

637 The Alpine Slavs were a group of Slavic tribes who settled in the Eastern Alps region
638 during the 6th to 8th centuries AD. They are considered to be the ancestors of modern-day
639 Slovenes, as well as some other South Slavic peoples. But how did they get there and what
640 were the factors that influenced their migration and settlement?

641 According to historical sources and archaeological evidence, the Slavic settlement of the
642 Eastern Alps can be divided into two phases. The first phase began around 550 AD, when
643 some West Slavic tribes moved southward from their original homeland in Moravia,
644 following the rivers and valleys of the former Roman province of Noricum. They reached the
645 Karawanks mountain range and the area around Ptuj, where they encountered the remnants of
646 the Roman civilization and culture. [1] [2]

647 The second phase started after 568 AD, when the Lombards, a Germanic people who had
648 conquered most of Italy, left some of their territories in the Alps to their allies, the Avars. The
649 Avars were a nomadic people from Central Asia who had established a powerful empire in
650 the Pannonian plain and had subjugated many Slavic tribes under their rule. The Avars
651 allowed some of these Slavic tribes, mostly from the East Slavic branch, to move into the
652 vacated lands and to serve as a buffer zone against potential invaders. These Slavic tribes
653 settled in modern-day Carinthia, Styria, Friuli and Slovenia, where they mixed with the
654 earlier West Slavic settlers and the local Romanized population. [3] [4]

655 The Alpine Slavs developed their own distinctive culture and identity, influenced by
656 their diverse origins, their interaction with other peoples and their adaptation to the natural
657 environment. They formed tribal alliances and principalities, such as Carantania, which was
658 the first known Slavic state in history. They also preserved their pagan religion and customs

²⁷ Bing Compose as used (Edge Version 114.0.1823.51, MacOS Ventura 13.3.1) disregarded instructions on tone and length in the prompt in favour of the preconfigured settings (e.g., short, medium, long for content length). Experimentally, we found that the used settings are generating the result most aligned with our intention regarding the length and style.

659 until they were gradually Christianized by missionaries from the Frankish kingdom and the
660 Byzantine empire in the 8th and 9th centuries. [5] [6]

661 The Alpine Slavs were thus an important part of the early medieval history of Europe
662 and played a significant role in the formation of the South Slavic nations. Their settlement of
663 the Eastern Alps was a complex and dynamic process that involved multiple factors, such as
664 political alliances, military conflicts, demographic movements, cultural exchanges and
665 environmental adaptations.

666 *References:*

667 [1] *Early Slavs - Wikipedia* https://en.wikipedia.org/wiki/Early_Slavs

668 [2] *Slavic settlement of the Eastern Alps - Wikipedia*
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671 [4] *History of Slovenia - Wikipedia* https://en.wikipedia.org/wiki/History_of_Slovenia

672 [5] *Carantania - Wikipedia* <https://en.wikipedia.org/wiki/Carantania>

673 [6] *Christianization of Slovenia - Wikipedia*
674 https://en.wikipedia.org/wiki/Christianization_of_Slovenia

675 Bard (8 June)

676 The scientific explanation for the settlement of Alpine Slavs in the Early Middle Ages is
677 a complex issue that has been debated by historians and archaeologists for many years. There
678 is no single, universally accepted explanation, but a number of factors are thought to have
679 contributed to the Slavic migration into the Alps.

680 One factor that may have played a role in the Slavic migration was the collapse of the
681 Western Roman Empire in the 5th century. The fall of the Roman Empire created a power
682 vacuum in Central and Eastern Europe, which allowed the Slavs to expand into the region.
683 The Slavs were a nomadic people who were skilled in agriculture and warfare. They were
684 also able to adapt to new environments, which made them well-suited to settling in the Alps.

685 Another factor that may have contributed to the Slavic migration was the Hunnic
686 invasions. The Huns were a nomadic people who invaded Central and Eastern Europe in the
687 4th and 5th centuries. They forced many people, including the Slavs, to migrate to new areas.
688 The Slavs may have migrated to the Alps in order to escape the Huns.

689 The Avar Khaganate was also a factor in the Slavic migration. The Avars were a
690 nomadic people who established a khaganate in Central Europe in the 6th century. They
691 allied themselves with the Slavs and helped them to expand into the Balkans. The Slavs may
692 have migrated to the Alps in order to join the Avars.

693 The Plague of Justinian was another factor that may have contributed to the Slavic
694 migration. The Plague of Justinian was a major epidemic that struck the Roman Empire in the
695 6th century. It is estimated that the plague killed up to half of the population of the empire.
696 This created a demographic void that the Slavs were able to fill. The Slavs may have
697 migrated to the Alps in order to find new land and resources.

698 The Late Antique Little Ice Age was a period of cooling that occurred in the 6th and 7th
699 centuries. It is believed that this period of climate change may have led to crop failures and

700 famine, which may have forced people to migrate in search of food. The Slavs may have
701 migrated to the Alps in order to escape the effects of the Little Ice Age.

702 The Slavic migration into the Alps had a profound impact on the region. The Slavs
703 brought their own language, culture, and religion to the Alps, and they eventually displaced
704 the native populations. The Slavic languages are now spoken by the majority of people in the
705 Alps, and the region's culture is heavily influenced by Slavic traditions.

706 References

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708 Cambridge University Press, 2001.
- 709 • Curta, Florin. *The Making of the Slavs: History and Archaeology of the Early Slavs*.
710 Cambridge University Press, 2001.
- 711 • Ward-Perkins, Bryan. *The Fall of Rome: A New History*. Oxford University Press,
712 2005.

713 In addition to the above, here are some other sources that provide more information on
714 the settlement of Alpine Slavs in the Early Middle Ages:

- 715 • "The Migration of the Slavs" by Thomas M. Pryor (*The Catholic Encyclopedia*)
- 716 • "The Alpine Slavs" by Florin Curta (*The Oxford Handbook of Medieval*
717 *Archaeology*)
- 718 • "The Slavic Settlement of the Alps" by Thomas L. Markey (*Slavic Review*)

719 Aria (22 June 2023)

720 The settlement of [Alpine Slavs]²⁸ in Early Middle Ages is a topic of interest for
721 historians and scholars. The [Alpine Slavs]²⁹, also known as the Western Slavs, settled in the
722 Alpine region of [Central Europe]³⁰ during the 6th and 7th centuries. This settlement had a
723 significant impact on the development of the region and its people, and has been the subject
724 of much debate and speculation.

725 One of the primary reasons for the settlement of the [Alpine Slavs]³¹ was the expansion
726 of the [Frankish Empire]³² in the region. The [Franks]³³, a Germanic tribe, had established a
727 powerful empire in Western Europe in the 5th and 6th centuries. The [Franks]³⁴ were known
728 for their aggressive expansion and conquests, and they put pressure on the surrounding tribes
729 to either submit to their rule or be conquered. This pressure likely contributed to the

²⁸ (<https://www.google.com/search?q=Alpine%20Slavs>)

²⁹ (<https://www.google.com/search?q=Alpine%20Slavs>)

³⁰ (<https://www.google.com/search?q=Central%20Europe>)

³¹ (<https://www.google.com/search?q=Alpine%20Slavs>)

³² (<https://www.google.com/search?q=Frankish%20Empire>)

³³ (<https://www.google.com/search?q=Franks>)

³⁴ (<https://www.google.com/search?q=Franks>)

730 settlement of the [Alpine Slavs]³⁵ in the region, where they could establish a new homeland
731 away from the [Franks]³⁶.

732 Another important factor in the settlement of the [Alpine Slavs]³⁷ was the political
733 instability and fragmentation of the region at the time. The collapse of the [Western Roman
734 Empire]³⁸ had left a power vacuum in [Central Europe]³⁹, and various tribes and peoples were
735 vying for control. The [Alpine Slavs]⁴⁰ likely saw the Alpine region as an opportunity to
736 establish a new homeland and gain more political power and autonomy.

737 Additionally, the [Alpine Slavs]⁴¹ were attracted to the fertile land and favorable climate
738 of the region. The Alpine region offered many opportunities for agriculture and trade, and the
739 [Alpine Slavs]⁴² were able to establish a prosperous society in the region.

740 There is also evidence to suggest that the settlement of the [Alpine Slavs]⁴³ was driven by
741 cultural and religious factors. The [Alpine Slavs]⁴⁴ were pagan at the time of their settlement,
742 but they quickly adopted [Christianity]⁴⁵ after their arrival in the region. This suggests that
743 they may have been attracted to the Christian culture and traditions of the region.

744 In conclusion, the settlement of [Alpine Slavs]⁴⁶ in Early Middle Ages was likely driven
745 by a combination of political, economic, and cultural factors. The pressure from the [Frankish
746 Empire]⁴⁷, the political instability of the region, and the attractive land and climate of the
747 Alpine region all played a role in the settlement. Additionally, the cultural and religious
748 traditions of the region may have played a role in the [Alpine Slavs]⁴⁸ decision to settle.
749 Further research is needed to fully understand the motivations and causes of this settlement.

750 References:

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756 Praeger.

³⁵ (<https://www.google.com/search?q=Alpine%20Slavs>)

³⁶ (<https://www.google.com/search?q=Franks>)

³⁷ (<https://www.google.com/search?q=Alpine%20Slavs>)

³⁸ (<https://www.google.com/search?q=Western%20Roman%20Empire>)

³⁹ (<https://www.google.com/search?q=Central%20Europe>)

⁴⁰ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴¹ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴² (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴³ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴⁴ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴⁵ (<https://www.google.com/search?q=Christianity>)

⁴⁶ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴⁷ (<https://www.google.com/search?q=Frankish%20Empire>)

⁴⁸ (<https://www.google.com/search?q=Alpine%20Slavs>)

757 Claude 2 (26 July 2023)

758 Here is a 499 word essay on the scientific explanation for the settlement of Alpine Slavs
759 in the Early Middle Ages:

760

761 The settlement of Slavic peoples into the Eastern Alps during the Early Middle Ages (c.
762 550–800 CE) transformed the demographic makeup of the region. Scientifically, this
763 migration can be understood through push and pull factors, material evidence, and linguistic
764 shifts.

765 By the 6th century CE, Slavic groups inhabited areas north and east of the Alps, in
766 modern-day Poland, Czechia, Slovakia and Ukraine. Environmental and political pressures
767 encouraged their migration westwards. A colder, drier climate made agriculture more
768 difficult, while growing population density strained local resources. The power vacuum left
769 by the collapse of the Western Roman Empire also enabled Slavs to move into former Roman
770 provinces to establish new settlements.

771 At the same time, the Alpine region offered attractive conditions for incoming migrants.
772 The milder climate, abundant water sources, fertile valleys and pastures were conducive to
773 farming and herding. Depopulation of Roman settlements due to war, disease and migration
774 meant Slavs could occupy abandoned areas. Geographic proximity to Slavic homelands in the
775 Carpathian Basin, Moravia and Lower Austria also enabled feasible migration into the
776 Eastern Alps.

777 Archaeological evidence demonstrates Slavic settlement in the Eastern Alps from the
778 late 6th century CE. Distinctively Slavic pottery, tools, jewelry and funerary rites appear at
779 sites across modern-day Austria, Slovenia, northern Italy and southern Germany. Slavic
780 agricultural terracing and stone huts have also been identified. These material artifacts
781 directly reflect the migration and integration of Slavic communities in Alpine areas.

782 Linguistic shifts also attest to Slavic migration. The introduction of Slavic dialects like
783 Slovenian provides clear evidence of Slavic language penetration into Alpine Europe. Place
784 names of Slavic origin became common across the region. Records show Christian
785 missionaries needed to preach in Slavic languages to effectively convert Alpine Slavs,
786 demonstrating their demographic dominance.

787 In summary, an interdisciplinary analysis of environmental pressures, geographic
788 incentives, archaeological artifacts and linguistic changes provides robust scientific evidence
789 for the westward migration and large-scale settlement of Slavic groups in the Eastern Alps
790 during the Early Middle Ages. This mass migration reshaped the ethnic character and cultural
791 heritage of the Alpine region in a profound way that remains evident today.

792

793 References:

794 Curta, Florin. Southeastern Europe in the Middle Ages, 500-1250. Cambridge:
795 Cambridge University Press, 2006.

796 Human expert (B. Štular, 8 June 2023)

797

798 Alpine Slavs is the term used in historiography and archaeology to describe the Slavic-
799 speaking Early Mediaeval population of the Eastern Alps.

800 The migration of the Alpine Slavs can only be discussed in the context of the general
801 Slavic migration. The rapid spread of the Slavic language between about 400 and 850 CE
802 remains a controversial topic. There are two main reasons for this. First, the lack of first-hand
803 written sources before the end of the ninth century. Second, the archaeological evidence on
804 the subject is sparse compared to many other Early Medieval "peoples".

805 Currently, there are three main hypotheses. The first assumes that speakers moved in all
806 directions from their small original habitat, the so-called *Urheimat* (1). The second assumes
807 the diffusion of the Slavic cultural model among non-Slavic populations or, in its extreme
808 form, the diffusion of language alone (2). Many archaeologists adhere to the third, hybrid
809 hypothesis. The hybrid hypothesis states that movement, cultural diffusion, and language
810 diffusion occurred simultaneously. This is supported by recent research in population
811 genetics and linguistics. It seems that the language spread in the West Slavic zone mainly by
812 migration to sparsely populated areas, and in the East Slavic zone by a combination of
813 migration and language shift. The spread in the South Slavic region was triggered by
814 migration, but the main mechanism for further spread was a language shift from local Balkan
815 idioms to Slavic (3).

816 In a recent paper (4) the migration of Alpine Slavs was described as a combination of
817 movement of people, cultural diffusion, and language diffusion, all occurring simultaneously.
818 The immigrants were defined as speakers of Slavic and shared specific "Slavic" ancestry.
819 Two founder populations migrated to the Eastern Alps: The first after c. 500 and the second
820 before c. 700 CE. The number of migrating people was relatively small and more akin to a
821 small group infiltration than a mass migration. This study, based on the convergence of
822 evidence from archaeology, linguistics, and population genetics, confirmed the validity of the
823 hybrid hypothesis of Slavic migration with archaeological data.

824 It must be emphasised, however, that the events that occurred after the migration were
825 historically the most important and that the decisive acculturation process was cultural
826 diffusion, including the language shift from local idioms to Slavic.

827 As another important study has shown (5), there is no evidence of a state of tranquillity
828 and social rigidity before or after the arrival of the Slavs. Rather, the population of the
829 Eastern Alps was a dynamic system in constant flux. In the 7th century, after the migration of
830 Slavs, the population of the Eastern Alps was socially, ethnically, and politically very
831 heterogeneously composed. A centralised rule of a single dynasty in a hegemonic position
832 cannot be discerned.

833 References

834 (1) Filipec, K. *Praishodište i/ili situacija: Slaveni i Hrvati-do zauzimanja nove*
835 *domovine*. Zagreb: Centar za ranosrednjovjekovna istraživanja Zagreb-Lobor, 2020.

836 (2) Curta F. *The Making of the Slavs : History and Archaeology of the Lower Danube*
837 *Region, c. 500-700*. Cambridge: Cambridge University Press; 2001.

838 (3) Lindstedt J, Salmela E. Language Contact and the Early Slavs. In: Klír T, Boček V,
839 Jansens N, editors. *New perspectives on the Early Slavs and the rise of Slavic*.
840 *Universitätsverlag Winter GmbH; 2020. pp. 275–299.*

841 (4) Štular, B., Lozić, E., Belak, M., Rihter, J., Koch, I., Modrijan, Z., Magdič, A., Karl,
842 S., Lehner, M., Gutjahr, C. 2022, Migration of Alpine Slavs and machine learning: Space-
843 time pattern mining of an archaeological data set, *PLOS ONE* 17 (9), e0274687.

844 (5) EichertEichert, S. 2014, "Great Men", "Big Men" und "Chiefs" in Karantanien? Ein
845 etwas anderer Blickwinkel auf frühmittelalterliche Herrschafts- und Organisationsstrukturen,
846 *Carinthia I* 204, 61-78.

847 Additional suggested reading

848 Pleterski, A. Etnogeneza slavena – metode i proces, *Starohrvatska prosvjeta*, 40, pp. 8–
849 32, 2013.

850 Korošec, P. Zgodnjesrednjeveška arheološka slika karantanskih Slovanov =
851 Archäologisches Bild der Karantanischen Slawen im frühen Mittelalter. Ljubljana: SAZU;
852 1979.

1 Appendix B: Original scientific contribution

2 Legend

3 Original scientific contribution

4 Derivative scientific contribution

5 Generic content that is not directly related to the question

6 Incorrect: Factually incorrect, containing mistakes that change the meaning, or disputed

7

8 What is scientific explanation for migration of South Slavs in Early
9 Middle Ages. Write 500 words using formal language and provide
10 references where possible.

11 Chat GPT-3.5 (6 June 2023)¹

12 The migration of the South Slavs during the Early Middle Ages is a complex
13 phenomenon that has been extensively studied by historians and scholars. It refers to the
14 movement of Slavic peoples from their ancestral homeland in the region of present-day
15 Ukraine and Belarus to the Balkan Peninsula in the 6th and 7th centuries. This mass
16 migration played a crucial role in shaping the ethnic, linguistic, and cultural landscape of the
17 Balkans. The scientific explanation for this migration involves various factors such as
18 demographic pressures, political upheavals, and economic opportunities.

19 One of the key factors behind the migration of the South Slavs was demographic
20 pressure. The ancestral homeland of the Slavs in Eastern Europe was characterized by a
21 rapidly growing population. The available resources and agricultural land were becoming
22 increasingly scarce to sustain the expanding population. This demographic pressure,
23 combined with the desire for better living conditions, prompted groups of Slavic tribes to
24 embark on a migration towards the south. They sought to establish new settlements in more
25 fertile and less populated regions, such as the Balkans.

26 Political upheavals in Eastern Europe also played a significant role in the migration of
27 the South Slavs. During the 6th and 7th centuries, the region witnessed a series of political
28 changes and conflicts, including the expansion of the Avar Khaganate and the Byzantine
29 Empire. These political developments disrupted the existing social and political order in the
30 Slavic homelands, leading to increased instability and the displacement of many Slavic tribes.
31 Some groups chose to migrate southward in search of stability and security in new territories.

32 Economic opportunities presented another crucial factor in the migration of the South
33 Slavs. The Balkans offered favourable conditions for agricultural development and trade,
34 with its fertile lands and strategic location at the crossroads of major trade routes. The South
35 Slavs, known for their agricultural expertise, recognized the potential economic benefits of
36 settling in the Balkans. The region's natural resources, including forests, rivers, and mineral
37 deposits, further enticed the migrating Slavic tribes. The prospect of establishing prosperous

¹ <https://chat.openai.com/share/31858cdd-4500-4024-9222-7071502b2a46>

38 agricultural communities and engaging in trade motivated the South Slavs to undertake the
39 arduous journey southward.

40 It is important to note that the migration of the South Slavs was a complex and
41 multifaceted process, involving interactions with existing populations and cultures in the
42 Balkans. The arrival of the Slavs brought about significant changes in the social, linguistic,
43 and political dynamics of the region, eventually leading to the emergence of distinct Slavic
44 states and the formation of the South Slavic linguistic group.

45 Numerous scholarly works have explored the topic of South Slavic migration, providing
46 valuable insights into the historical, archaeological, and linguistic aspects of this
47 phenomenon. Some notable references that shed light on the scientific explanation for the
48 migration of the South Slavs include:

49 1. Curta, F. (2001). *The Making of the Slavs: History and Archaeology of the Lower*
50 *Danube Region, c. 500-700*. Cambridge University Press.

51 2. Fine, J. V. A. (1991). *The Early Medieval Balkans: A Critical Survey from the Sixth*
52 *to the Late Twelfth Century*. University of Michigan Press.

53 3. Barford, P. M. (2001). *The Early Slavs: Culture and Society in Early Medieval*
54 *Eastern Europe*. Cornell University Press.

55 4. Kortmann, B., & Van der Auwera, J. (Eds.). (2011). *The Languages and Linguistics of*
56 *Europe: A Comprehensive Guide*. Walter de Gruyter.²

57 These scholarly works offer in-depth analysis and scholarly interpretations of the
58 historical and sociocultural factors that contributed to the migration of the South Slavs in the
59 Early Middle Ages.

60 Chat GPT-4 (7 June 2023)³

61 The migration of the South Slavs during the Early Middle Ages, typically dated between
62 the 6th and 9th centuries AD, is a significant event in European history that shaped the
63 cultural, political, and demographic landscape of Eastern and Southeastern Europe. This
64 process, while highly complex, can be analyzed through various scientific lenses including
65 archaeology, historical linguistics, and population genetics, each offering unique insights into
66 this remarkable migratory event.

67 In archaeological terms, this migration is characterized by evidence of cultural shifts
68 seen in the material artifacts of the period. The South Slavs brought with them a distinct
69 material culture, exemplified by specific pottery styles, architectural techniques, and burial
70 customs, which gradually replaced or coexisted with those of the native populations (Curta,
71 2001). Archaeological findings, such as the assemblages from the Selaveni and Antes
72 cultures, provide tangible evidence of these shifts.

73 Historical linguistics offers another important perspective. The spread of Slavic
74 languages across Eastern Europe is widely accepted as evidence of the South Slavs migration
75 (Barford, 2001). The development of different dialects and the incorporation of words from

² ChatGPT-3 released in November 2022 was notorious for inventing references that sounded plausible, but were not existing. We confirmed that testing in december 2022.

³ <https://chat.openai.com/share/0e620bd7-2d85-4938-835f-b7f44049883c>.

76 other languages provide clues to the movement and interactions of the South Slavs with other
77 communities.

78 Population genetics studies have become increasingly important in understanding
79 historical migrations, including that of the South Slavs. Genetic markers, particularly on the
80 Y chromosome and mitochondrial DNA, allow scientists to track lineages and population
81 movements over time (Rootsi et al., 2004). Recent studies suggest a significant gene flow
82 from the area of the historical Proto-Slavic homeland (roughly corresponding to modern-day
83 Ukraine and Eastern Poland) towards the Balkans and other parts of Southeast Europe
84 (Peričić et al., 2005).

85 Nonetheless, the migration of the South Slavs remains a multifaceted event, which
86 cannot be fully explained by a single discipline. Instead, it is the combination of
87 archaeological, linguistic, and genetic evidence that allows us to gain a comprehensive
88 understanding of this complex process. Furthermore, it's crucial to note the migration of
89 South Slavs was not a singular event, but rather a series of movements over a few centuries
90 that was likely motivated by a combination of political, economic, and environmental factors.

91 Historical and scientific research continues to shed light on the migration of the South
92 Slavs, yet gaps in our understanding persist. This migratory event serves as a reminder of the
93 complexity of human history and the multifaceted scientific approaches required to unravel it.

94 References:

95 1. Curta, F. (2001). *The Making of the Slavs: History and Archaeology of the Lower*
96 *Danube Region, c. 500–700*. Cambridge University Press.

97 2. Barford, P. M. (2001). *The Early Slavs: Culture and Society in Early Medieval*
98 *Eastern Europe*. Cornell University Press.

99 3. Rootsi, S., et al. (2004). Phylogeography of Y-chromosome haplogroup I reveals
100 distinct domains of prehistoric gene flow in Europe. *American Journal of Human Genetics*,
101 *75(1)*, 128–137.

102 4. Peričić, M., et al. (2005). High-resolution phylogenetic analysis of southeastern
103 Europe traces major episodes of paternal gene flow among Slavic populations. *Molecular*
104 *Biology and Evolution*, *22(10)*, 1964–1975.

105 ChatGPT-4 w/ Bing browsing (26 June 2023)^{4,5}

106 The migration of South Slavs during the Early Middle Ages, a significant event in the
107 history of Europe, is a complex process that can be analyzed from various angles, including
108 historical, archaeological, and linguistic perspectives. Historians and scholars have proposed
109 various theories to explain this phenomenon, but a definitive consensus remains elusive due
110 to the intricate interplay of numerous factors.

111 Primarily, it is critical to note that the South Slav migration occurred in the context of
112 the broader Migration Period, a time of widespread population movements across Europe
113 from the 4th to 8th century AD. This period was characterized by the decline of the Western
114 Roman Empire and the expansion of various Germanic, Turkic, and Slavic tribes. The South

⁴ <https://chat.openai.com/share/44b6b18e-7997-4c7c-a7f9-e10a3e2281b9>.

⁵ Although Bing browsing was enabled, ChatGPT did not execute the search. The description of the function is: (as of 26 June 2023).

115 Slavs, as a part of this larger migration wave, moved from their original homeland in Eastern
116 Europe to the Balkans.

117 Several factors, both 'push' and 'pull', have been posited to explain the South Slav
118 migration. 'Push' factors refer to conditions that compelled the South Slavs to leave their
119 original homeland. These include ecological changes, population pressures, and political
120 instability in Eastern Europe. 'Pull' factors, on the other hand, are conditions that attracted the
121 South Slavs to the Balkans. These include the relative political vacuum left by the retreating
122 Roman Empire, economic opportunities, and the availability of fertile land.

123 Firstly, ecological changes may have played a significant role. There is evidence to
124 suggest that during the Early Middle Ages, there were climatic changes in Eastern Europe,
125 which could have impacted agricultural yields and forced the South Slavs to seek new lands
126 for cultivation.

127 Secondly, population pressures and political instability in their original homeland may
128 have triggered the migration. The Slavic peoples, being primarily agricultural, would have
129 been significantly affected by land scarcity. Furthermore, the political landscape of Eastern
130 Europe during this period was marred by frequent conflicts among various tribes and with
131 external powers, such as the Avars and the Byzantine Empire.

132 Lastly, the decline of the Western Roman Empire left a relative political vacuum in the
133 Balkans. The South Slavs, attracted by the availability of fertile land and economic
134 opportunities, moved into this area, where they established new political entities.

135 The archaeological and linguistic evidence supports this narrative of South Slav
136 migration. Archaeological findings, such as Slavic-style pottery and burial practices, indicate
137 a Slavic presence in the Balkans during the Early Middle Ages. Linguistic evidence, such as
138 the spread of Slavic languages and the adoption of Latin loanwords, further corroborates this.

139 In conclusion, the migration of South Slavs during the Early Middle Ages is a
140 multifaceted process that likely resulted from a combination of ecological changes,
141 population pressures, political instability, and the decline of the Western Roman Empire. It
142 represents a crucial event in the shaping of the Balkan Peninsula's demographic and cultural
143 landscape.

144

145 References:

146 1. Curta, Florin (2001). *The Making of the Slavs: History and Archaeology of the Lower*
147 *Danube Region, c. 500–700*. Cambridge: Cambridge University Press.

148 2. Pohl, Walter (1998). "Conceptions of Ethnicity in Early Medieval Studies". *Debating*
149 *the Middle Ages: Issues and Readings*. Blackwell Publishers.

150 3. Hrushevskyi, Mykhailo (1997). *History of Ukraine-Rus'*. Canadian Institute of
151 *Ukrainian Studies Press*.

152

153 (Note: The actual papers/books may not contain the exact information presented in the
154 text but they are widely recognized authorities on the subject matter of Slavic migrations.)

156 The migration of South Slavs during the Early Middle Ages is a complex phenomenon
157 that can be explained through a combination of genetic, archaeological, and historical
158 evidence.

159 Genetic studies have shown that the South Slavs are a diverse group with a high degree
160 of genetic mixing, suggesting a history of migration and intermarriage with other groups. A
161 study by Mirabal et al. (2010) found that the South Slavs have a high degree of genetic
162 diversity, with significant contributions from both Eastern European and Mediterranean
163 populations[1].

164 Archaeological evidence also supports the idea of migration and cultural exchange. A
165 study by Hakenbeck et al. (2010) found evidence of a shift in burial practices among the
166 South Slavs during the Early Middle Ages, suggesting cultural changes that could be
167 associated with migration[2].

168 Historical records also provide evidence of South Slav migration during this period. The
169 South Slavs are believed to have migrated from their original homeland in Eastern Europe to
170 the Balkan Peninsula during the 6th and 7th centuries AD, a period of significant political and
171 social change in Europe. This migration was likely driven by a combination of factors,
172 including political instability, economic opportunities, and environmental changes[3].

173 In a detailed study of dietary habits and mobility in Early Medieval populations in the
174 Italian Alps, it was found that differences in subsistence are more dependent on the
175 environmental context, mainly on altitudes, rather than on cultural influences. Enriched $\delta^{15}\text{N}$
176 values are noted at higher altitudes, probably due to a diet richer in animal proteins and dairy
177 products. Differences in $\delta^{15}\text{N}$ values might also be attributed to social status when
178 considered in combination with recovered grave goods. The $\delta^{34}\text{S}$ data indicated higher
179 variability in Adige valley compared to the other areas, suggesting greater mobility in
180 Adige[4].

181 In conclusion, the migration of the South Slavs during the Early Middle Ages can be
182 explained through a combination of genetic, archaeological, and historical evidence. This
183 migration was likely driven by a complex interplay of political, economic, and environmental
184 factors.

185

186 [1]: [Mirabal et al., 2010] (<https://onlinelibrary.wiley.com/doi/pdf/10.1046/j.1469-1809.2003.00042.x>)

188 [2]: [Hakenbeck et al., 2010] (<https://figshare.com/ndownloader/files/7739344>)

189 [3]: [Curta, 2001] (<https://www.cambridge.org/core/journals/nationalities-papers/article/abs/veneti-antichi-albanesi-moderni-e-migranti-slavi-la-ricostruzione-della-migrazione-degli-slavi-nella-prima-meta-del-secolo-vii/6FD0F16B8E8BEEF8A8C6F4480D74F1F8>)

193 [4]: [Gismondi et al., 2020] (<https://link.springer.com/content/pdf/10.1007/s12520-019-00982-6.pdf>)

195 Would you like me to save these references for you?

⁶ <https://chat.openai.com/share/c39edeaf-f388-4027-909e-12c074f10182>

196

197 Bing Compose (2 July 2023; settings: *professional / blog / medium*)⁷

198 The migration of the South Slavs to the Balkans is a complex historical phenomenon that
199 involved various factors and processes. The scientific explanation for this migration requires
200 the analysis of different sources and disciplines, such as history, archaeology, linguistics,
201 genetics and anthropology.

202 One of the main sources for the migration of the South Slavs is the written accounts of
203 Byzantine and other contemporary authors, who witnessed or reported the movements and
204 activities of the Slavic tribes in the 6th and 7th centuries AD. According to these sources, the
205 Slavs were a diverse group of tribal societies who lived in Central and Eastern Europe and
206 were known by different names, such as Veneti, Antes and Sclaveni. They were initially
207 subjects or allies of the Avars, a nomadic people who invaded the Balkans in the late 6th
208 century and challenged the Byzantine Empire. The Slavs participated in the Avar raids and
209 sieges against the Byzantine cities and fortresses, but also settled in the lands they conquered
210 or plundered, forming independent communities or principalities. Some of these Slavic
211 groups established contacts and alliances with the Byzantine Empire, while others resisted or
212 rebelled against it. [1] [2]

213

214 Another source for the migration of the South Slavs is the archaeological evidence,
215 which reveals the material culture and settlement patterns of the Slavic populations in the
216 Balkans. The archaeological finds show that the Slavs brought with them their distinctive
217 pottery, jewelry, weapons, tools and burial customs, which differed from those of the native
218 populations or previous invaders. The Slavs also introduced new types of settlements, such as
219 open villages, hillforts and rural hamlets, which reflected their social organization and
220 economic activities. The archaeological evidence also suggests that there was a population
221 exchange between the Slavs and the natives, involving assimilation, acculturation,
222 displacement or coexistence. [3] [4]

223 A third source for the migration of the South Slavs is the linguistic evidence, which
224 traces the origin and development of the Slavic languages and dialects in the Balkans. The
225 linguistic evidence shows that the Slavic languages belong to the Indo-European language
226 family and share a common ancestor, called Proto-Slavic, which was spoken by the early
227 Slavs in Eastern Europe. The Proto-Slavic language underwent several changes and splits
228 over time, resulting in different branches and groups of Slavic languages, such as East Slavic,
229 West Slavic and South Slavic. The South Slavic languages include Bulgarian, Macedonian,
230 Serbian, Croatian, Slovenian and others, which developed from a common dialectal
231 continuum that emerged in the Balkans after the migration of the South Slavs. The linguistic
232 evidence also indicates that there was a language shift to or from Slavic among some
233 populations in the Balkans, influenced by factors such as geography, politics, religion and
234 culture. [5] [6]

⁷ Bing Compose as used (Edge Version 114.0.1823.51, MacOS Ventura 13.3.1) disregarded instructions on tone and length in the prompt in favour of the preconfigured settings (e.g., short, medium, long for content length). Experimentally, we found that the used settings are generating the result most aligned with our intention regarding the length and style.

235 In conclusion, the migration of the South Slavs to the Balkans was a multifaceted
236 process that involved demographic, political, cultural and linguistic changes in the region.
237 The scientific explanation for this migration requires a multidisciplinary approach that
238 combines different sources and methods of research.

239 **References:**

240 [1] *Early Slavs - Wikipedia* https://en.wikipedia.org/wiki/Early_Slavs

241 [2] *Slavs, medieval migration - ResearchGate*
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243 [3] *Florin Curta (2001). The Making of the Slavs: History and Archaeology of the*
244 *Lower Danube Region c.500-700. Cambridge University Press.*

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246 *Archäologie: Geschichte, Grundlagen und Alternativen. Walter de Gruyter.*

247 [5] *Paul Barford (2001). The Early Slavs: Culture and Society in Early Medieval*
248 *Eastern Europe. Cornell University Press.*

249 [6] *Jürgen Udolph (1997). Studien zu slavischen Gewässernamen und*
250 *Gewässerbezeichnungen: ein Beitrag zur Frage nach der Urheimat der Slawen. Verlag der*
251 *Sächsischen Akademie der Wissenschaften.*

252 Bard (8 June)

253 The migration of the South Slavs in the Early Middle Ages was a complex event with
254 many causes. Some of the most important factors include:

- 255 • **The collapse of the Western Roman Empire.** The fall of the Western Roman
256 Empire in the 5th century created a power vacuum in Central and Eastern Europe.
257 This allowed the Slavs to expand into the region, which was previously under Roman
258 control.
- 259 • **The Hunnic invasions.** The Huns were a nomadic people who invaded Central and
260 Eastern Europe in the 4th and 5th centuries. They forced many people, including the
261 Slavs, to migrate to new areas.
- 262 • **The Avar Khaganate.** The Avars were a nomadic people who established a
263 khaganate in Central Europe in the 6th century. They allied themselves with the Slavs
264 and helped them to expand into the Balkans.
- 265 • **The Plague of Justinian.** The Plague of Justinian was a major epidemic that struck
266 the Roman Empire in the 6th century. It is estimated that the plague killed up to half
267 of the population of the empire. This created a demographic void that the Slavs were
268 able to fill.
- 269 • **The Late Antique Little Ice Age.** The Late Antique Little Ice Age was a period of
270 cooling that occurred in the 6th and 7th centuries. It is believed that this period of
271 climate change may have led to crop failures and famine, which may have forced
272 people to migrate in search of food.

273 The migration of the South Slavs had a profound impact on the Balkans. The Slavs
274 brought their own language, culture, and religion to the region, and they eventually displaced
275 the native populations. The Slavic languages are now spoken by the majority of people in the
276 Balkans, and the region's culture is heavily influenced by Slavic traditions.

277

References

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279 Cambridge University Press, 2001.
- 280 • Curta, Florin. *The Making of the Slavs: History and Archaeology of the Early Slavs*.
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- 282 • Ward-Perkins, Bryan. *The Fall of Rome: A New History*. Oxford University Press,
283 2005.

284 Aria (22 June 2023)

285 The migration of [South Slavs]⁸ in Early Middle Ages has been a topic of interest for
286 historians and scholars for many years. The South Slavs, also known as the Slavic peoples,
287 migrated from the [Carpathian Mountains]⁹ in Eastern Europe to the [Balkans]¹⁰ in the 6th
288 and 7th centuries. This migration had a significant impact on the development of the region
289 and its people, and has been the subject of much debate and speculation.

290 One of the primary reasons for the migration of the South Slavs was the pressure from
291 other tribes and peoples in Eastern Europe. The [Avars]¹¹, a nomadic people from Central
292 Asia, had established a powerful empire in Eastern Europe in the 6th century. The Avars
293 were known for their aggressive expansion and raids, and they put pressure on the
294 surrounding tribes to migrate or be conquered. This pressure likely contributed to the
295 migration of the South Slavs to the Balkans, where they could establish a new homeland
296 away from the Avars.

297 Another important factor in the migration of the South Slavs was the political instability
298 and fragmentation of the Eastern European region at the time. The collapse of the [Western
299 Roman Empire]¹² had left a power vacuum in the region, and various tribes and peoples were
300 vying for control. The South Slavs likely saw the Balkans as an opportunity to establish a
301 new homeland and gain more political power and autonomy.

302 Additionally, the South Slavs were attracted to the fertile land and favorable climate of
303 the Balkans. The region offered many opportunities for agriculture and trade, and the South
304 Slavs were able to establish a prosperous society in the region.

305 There is also evidence to suggest that the migration of the South Slavs was driven by
306 cultural and religious factors. The South Slavs were pagans at the time of their migration, but
307 they quickly adopted [Christianity]¹³ after their arrival in the Balkans. This suggests that they
308 may have been attracted to the Christian culture and traditions of the region.

309 In conclusion, the migration of the South Slavs in Early Middle Ages was likely driven
310 by a combination of political, economic, and cultural factors. The pressure from other tribes
311 and peoples in Eastern Europe, the political instability of the region, and the attractive land

⁸ (<https://www.google.com/search?q=South%20Slavs>)

⁹ (<https://www.google.com/search?q=Carpathian%20Mountains>)

¹⁰ (<https://www.google.com/search?q=Balkans>)

¹¹ (<https://www.google.com/search?q=Avars>)

¹² (<https://www.google.com/search?q=Western%20Roman%20Empire>)

¹³ (<https://www.google.com/search?q=Christianity>)

312 and climate of the Balkans all played a role in the migration. Additionally, the cultural and
313 religious traditions of the region may have played a role in the South Slavs' decision to
314 migrate. Further research is needed to fully understand the motivations and causes of this
315 migration.

316 **References:**

317 - Curta, F. (2013). The making of the Slavs: history and archaeology of the Lower
318 Danube Region, c. 500-700. Cambridge University Press.

319 - Fine, J. V. A. (1991). The early medieval Balkans: a critical survey from the sixth to
320 the late twelfth century. University of Michigan Press.

321 - Obolensky, D. (1971). The Byzantine Commonwealth: Eastern Europe, 500-1453.
322 Praeger.

323 Claude 2 (26 July 2023)

324 Here is a 497 word essay on the scientific explanation for the migration of South Slavs in
325 the Early Middle Ages:

326

327 The migration of Slavic peoples into the Balkan peninsula during the Early Middle Ages
328 (c. 500-1000 CE) was a significant historical event that reshaped the ethnic and political
329 landscape of Europe. From a scientific perspective, the Slavic migrations can be explained
330 through a combination of push and pull factors.

331 Archaeological evidence indicates that the original homeland of the South Slavs was in
332 the area north and east of the Carpathian Mountains, known as the Slavic Urheimat.

333 Environmental and demographic pressures likely encouraged Slavic groups to venture south
334 and west into new territories. Northern and Eastern Europe became drier during the late 5th
335 and 6th centuries CE, impacting agriculture and food supply in Slavic homelands. Growing
336 population density also strained resources. These push factors initiated migrations in search
337 of more favorable environmental and economic conditions to the south and west.

338 The Balkan peninsula at this time presented an attractive target for migration and
339 settlement. The withdrawal of Roman imperial authority in the area created a power vacuum,
340 enabling incoming Slavs to establish new autonomous chiefdoms without centralized control.
341 Geographic proximity to the Slavic homelands enabled feasible migration. Furthermore, the
342 milder climate and fertile agricultural land in the Balkan peninsula served as pull factors for
343 Slavic settlers seeking better opportunities.

344 Archaeology provides material evidence of Slavic migration into the Balkans during this
345 period. Distinctively Slavic pottery, ornaments, architecture, and funerary customs appear in
346 parts of the Balkans from the late 6th century CE, indicating steady migration and integration
347 of Slavs with indigenous Illyrian, Thracian, and Romanized populations. Linguistic evidence
348 also demonstrates the spread of Slavic languages southwards.

349 From a scientific perspective, the Slavic migrations exemplify the complex interplay
350 between environmental, demographic, social, and political factors that spur human migration.
351 While the exact triggers remain debated by scholars, an interdisciplinary analysis using
352 archaeology, linguistics, climate data, and historical texts provides a robust explanation of
353 this major ethnographic shift in the Early Middle Ages.

354

355 References:

356 Curta, Florin. *The Making of the Slavs: History and Archaeology of the Lower Danube*
357 *Region, c. 500–700*. Cambridge: Cambridge University Press, 2001.

358 Fine, John V. A., Jr. *The Early Medieval Balkans: A Critical Survey from the Sixth to*
359 *the Late Twelfth Century*. Ann Arbor: University of Michigan Press, 1983.

360 Human expert (B. Štular; 8 June 2023)

361 Ancient Slavs is a complex subject and the complexity begins with the definition of the
362 term. For a linguist, "ancient" means something different than for an archaeologist. And to
363 archaeologists, who adhere to different hypotheses, the term "Slavs" means everything from
364 an ancient people that can be traced back to deep prehistory to a whim of a Byzantine scribe.
365 A recent study (1), based on the convergence of evidence from archaeology, linguistics, and
366 population genetics, identified a particular group of migrants as people who spoke Slavic and
367 had a specific ancestry common only to present-day speakers of Slavic. We extend this
368 definition to the term Slavs used in the context of the Early Middle Ages.

369 The rapid expansion of the Slavs between about 400 and 850 CE is also a controversial
370 topic, for two main reasons. First, there are no first-hand written sources from before the end
371 of the 9th century. Second, the archaeological evidence on this subject is sparse compared to
372 many other Early Medieval "peoples". Currently, there are three main hypotheses.

373 *Urheimat*. The first assumes that the Slavs moved in all directions from their small
374 original habitat, the so-called *Urheimat*. This hypothesis is a century old, but there have been
375 enormous advances in terms of archaeological data collected and also in terms of
376 methodology. By the mid-1990s, the immutability of ethnic identity was questioned and the
377 field was moving away from the perception of the ancient Slavs as an ethnic group and
378 instead viewing them as a language-based identity group (2).

379 *Diffusion*. The second hypothesis assumes the diffusion of the Slavic cultural model
380 among non-Slavic populations or, in its extreme form, the diffusion of language alone. The
381 watershed event for this hypothesis was "The Making of the Slavs" (3). The book was based
382 on a methodological and deconstructive historiography, underpinned by the application of
383 anthropological analogy in the interpretation of archaeological information. Using these
384 methods, the famous "The Germanic world was ... (a) creation of Roman political and
385 military genius" by P. Geary was rewritten as "(Being Slav) was ... an identity formed in the
386 shadow of Justinian's forts..."

387 In the last two decades, this hypothesis has been comprehensively refuted (4), for by
388 focussing on ethnicity (no longer a common topic in studies of the ancient Slavs since the
389 1990s) it was flawed in its foundations. The result was predetermined by the methodology,
390 which defined the ancient Slavs as a polity. Another criticism of this hypothesis comes from a
391 postcolonial perspective. Indeed, the colonial attitude of this book is already evident in the
392 title, which assigns a passive role to the Slavs.

393 Regardless of how short-lived this hypothesis was, it succeeded in beginning the process
394 of deconstructing the grand narrative of the mass migration of the ancient Slavs and placing
395 more emphasis on methodology and underlying theory.

396 *Hybrid*. The hybrid hypothesis states that movement, cultural diffusion, and language
397 diffusion occurred simultaneously. This is supported by recent research in population
398 genetics, linguistics, and archaeology. It seems that language spread in the West Slavic zone

399 was mainly caused by migration to sparsely populated areas and in the East Slavic zone by a
400 combination of migration and language shift. The spread in the South Slavic region (Balkans)
401 was triggered by migration, but the main mechanism for further spread was language shift
402 from local Balkan idioms to Slavic (1, 4).

403 References

404 (1) Štular, B., Lozić, E., Belak, M., Rihter, J., Koch, I., Modrijan, Z., Magdič, A., Karl,
405 S., Lehner, M., Gutjahr, C. 2022, Migration of Alpine Slavs and machine learning: Space-
406 time pattern mining of an archaeological data set, *PLOS ONE* 17 (9), e0274687.

407 (2) Filipec, K. *Praishodište i/ili situacija: Slaveni i Hrvati-do zauzimanja nove*
408 *domovine*. Zagreb: Centar za ranosrednjovjekovna istraživanja Zagreb-Lobor, 2020.

409 (3) Curta F. *The Making of the Slavs : History and Archaeology of the Lower Danube*
410 *Region, c. 500-700*. Cambridge: Cambridge University Press; 2001.

411 (4) Kushniarevich, A, Kassian, A. Genetics and Slavic Languages. In: Greenberg ML
412 (editor) *Encyclopedia of Slavic Languages and Linguistics Online*. doi: 10.1163/2F2589-
413 6229_eslo_com_032367.

414 (5) Lindstedt J, Salmela E. Language Contact and the Early Slavs. In: Klír T, Boček V,
415 Jansens N, editors. *New perspectives on the Early Slavs and the rise of Slavic*.
416 *Universitätsverlag Winter GmbH*; 2020. pp. 275–299.

417

418

419 What is scientific explanation for the settlement of Alpine Slavs in
420 Early Middle Ages? Write 500 words using formal language and
421 provide references where possible.

422

423 Chat GPT-3.5 (7 June 2023)¹⁴

424 The settlement of Alpine Slavs in the Early Middle Ages can be understood through a
425 combination of historical, archaeological, and linguistic evidence. This phenomenon is a
426 complex one, influenced by various factors including political, economic, and social
427 dynamics. In order to provide a scientific explanation for this historical event, it is essential to
428 examine the available evidence and consider multiple perspectives.

429 The Alpine Slavs, also known as the Slavic tribes of the Eastern Alps, began to settle in
430 the region during the 6th and 7th centuries. This migration is believed to have been driven by
431 a combination of push and pull factors. On one hand, the collapse of the Western Roman
432 Empire and the subsequent power vacuum created opportunities for new groups to establish
433 themselves in previously Roman-controlled territories. On the other hand, the Alpine region
434 offered attractive features such as fertile lands, natural resources, and strategic advantages for
435 defense and trade.

436 One of the primary sources of evidence for the settlement of Alpine Slavs comes from
437 archaeological findings. Excavations have revealed the presence of Slavic material culture,
438 such as pottery, weapons, jewelry, and settlements, in various parts of the Eastern Alps.
439 These findings provide tangible evidence of Slavic presence and help to establish the
440 chronology and distribution of their settlements. For example, the discovery of Slavic
441 cemeteries with distinctive burial practices helps to identify specific Slavic communities and
442 their cultural practices.

443 Linguistic evidence also plays a crucial role in understanding the settlement of Alpine
444 Slavs. The study of Slavic languages provides insights into the origin and migration patterns
445 of these tribes. Linguistic research suggests that the Alpine Slavs likely originated from
446 regions further east, such as Carantania (present-day Slovenia) and Pannonia (parts of
447 present-day Austria, Hungary, and Croatia). The Slavic language family, to which the Alpine
448 Slavic dialects belong, is a branch of the Indo-European language family. By tracing
449 linguistic similarities and changes, scholars can reconstruct the historical migrations and
450 interactions of these populations.

451 Historical accounts from the Early Middle Ages also provide valuable information about
452 the settlement of Alpine Slavs. Chronicles and annals, such as the works of Fredegar and Paul
453 the Deacon, mention the arrival and activities of Slavic tribes in the region. These written
454 sources often provide insights into the relationships between the Slavs and other
455 contemporary groups, such as the Lombards and the Avars, as well as the political and
456 military events of the time.

457 It is important to note that the settlement of Alpine Slavs was not a homogenous process.
458 Different Slavic tribes established themselves in various parts of the Eastern Alps, and their
459 interactions with pre-existing populations varied. Some areas experienced peaceful

¹⁴ <https://chat.openai.com/share/8860fa81-71ed-4f55-80d0-17c92fa613d6>.

460 coexistence and cultural exchange, while others witnessed conflicts and power struggles. The
461 dynamics of the settlement also evolved over time, as political entities emerged and
462 assimilation processes occurred.

463 In conclusion, the settlement of Alpine Slavs in the Early Middle Ages was a complex
464 phenomenon influenced by a range of factors. The evidence from archaeology, linguistics,
465 and historical accounts provides insights into the motivations and processes behind this
466 migration. However, it is essential to approach the topic with caution, as gaps in the evidence
467 and the interpretation of available sources can present challenges. Further research and
468 interdisciplinary collaboration are necessary to refine our understanding of this historical
469 event.

470 References:

- 471 1. Curta, F. (2001). *The Making of the Slavs: History and Archaeology of the Lower*
472 *Danube Region, c. 500-700*. Cambridge University Press.
- 473 2. Florin Curta (Ed.). (2017). *The Slavic World*. Routledge.
- 474 3. Reindel, K., & Reindel, S. (Eds.). (2009). *Slavs and Alamanni in the Early Middle*
475 *Ages: An Archaeology Perspective*

476 Chat GPT-4 (7 June 2023)¹⁵

477 The early settlement of the Alpine Slavs during the Middle Ages is a topic of
478 considerable historical interest. It represents a period of profound cultural shift and
479 geopolitical change in the region which has shaped its identity to this day. While specific
480 scientific explanations are challenging due to the limited physical and written records from
481 the era, several factors related to geography, climate, socio-economic pressures, and political
482 conditions are considered relevant.

483 At the end of the Late Antique period, around the 6th century, the Roman Empire, which
484 had hitherto dominated much of the European continent, was in decline. This transition led to
485 considerable socio-political upheaval and presented opportunities for groups like the Slavs to
486 expand their territories (Curta, 2001). The region of the Eastern Alps, characterized by fertile
487 valleys and defensible highlands, likely appeared as an attractive option for these migrating
488 communities.

489 Climate change is another key factor. The period between 300 and 700 AD, known as
490 the Late Antique Little Ice Age, was marked by cooler and more volatile weather conditions
491 (Büntgen et al., 2016). This may have compelled the Slavs to move to more habitable areas
492 like the Alpine regions, where they could leverage its unique topography for survival.

493 Additionally, the Roman Empire's dissolution left a power vacuum and a lack of
494 infrastructure that groups such as the Slavs could fill. According to Pohl (1998), the Slavs,
495 being less centralized and more flexible in their socio-political structure than the Romans,
496 were more capable of adapting to the new challenges posed by the physical and political
497 environment. The Slavs' tradition of farming also aligned well with the Alpine terrain,
498 making it an optimal choice for settlement.

499 Finally, the settlement of the Alpine Slavs also resulted from processes of cultural
500 assimilation and intermarriage with the local Romano-Celtic population. The evidence of

¹⁵ <https://chat.openai.com/share/e9788229-ecel1-4df7-b5ad-cff3e00551e9>.

501 mixed Slavic-Romance place names in the Eastern Alps implies a peaceful and gradual
502 integration of these different ethnic groups (Udolph, 1994).

503 In summary, the settlement of the Alpine Slavs in the Early Middle Ages was likely the
504 outcome of a convergence of multiple factors including geographical opportunities, climate
505 change, socio-economic changes, political conditions, and cultural assimilation. While much
506 of this period remains shrouded in the mists of time, modern archaeological and linguistic
507 research provides key insights into the scientific explanations for this fascinating chapter of
508 European history.

509 References:

510 - Büntgen, U. et al. (2016) Cooling and societal change during the Late Antique Little
511 Ice Age from 536 to around 660 AD. *Nature Geoscience*.

512 - Curta, F. (2001) *The Making of the Slavs: History and Archaeology of the Lower*
513 *Danube Region, c.500–700*. Cambridge University Press.

514 - Pohl, W. (1998) *Conceptions of Ethnicity in Early Medieval Studies*. In: Lester K.
515 Little, Rosamond McKitterick (eds.), *Debating the Middle Ages: Issues and Readings*.
516 Blackwell Publishers.

517 - Udolph, J. (1994) *Namenkundliche Studien zum Germanenproblem in Alteuropa*.
518 *Reallexikon der Germanischen Altertumskunde Ergänzungsbande*.

519 ChatGPT-4 w/ Bing search (26 June)¹⁶

520 The settlement of the Eastern Alps by the early Slavs occurred between the 6th and 8th
521 centuries, as part of the southward expansion of the early Slavs. This migration is understood
522 to have shaped the South Slavic group, and ultimately led to the ethnogenesis of present-day
523 Slovenes. The territories in question span modern-day Slovenia, Eastern Friuli, and
524 significant portions of contemporary Austria.¹⁷

525 The migration of Slavic peoples from their homeland began in the late 4th to early 5th
526 century, spurred by the arrival of the Huns in Eastern Europe and Germanic peoples'
527 incursions into the territory of the Roman Empire. During this period, Slavic tribes became
528 part of various alliances with the Germanic (Lombards, Gepids) and Eurasian (Avar, Bulgar)
529 peoples.¹⁸

530 Our understanding of the Slavic settlement in the Eastern Alps derives primarily from
531 archaeological evidence, ethnographic traces, historical linguistics (including toponymy), and
532 early historical sources. Such sources include the *Historia Langobardorum* by Paulus
533 Diaconus and letters from Pope Gregory I. Another crucial piece of evidence is the
534 progressive decline of ancient Christian dioceses in the respective areas, corresponding with
535 the advance of the Slavs. The Alpine Slavs, including the Carantanians, mainly originated
536 from the Prague-Korchak culture of Slavs and were significantly influenced by the Bijelo
537 Brdo culture of the Pannonian Slavs in the 10th century.¹⁹

¹⁶ <https://chat.openai.com/share/93a78773-1d35-4176-854e-c26dc6223761>.

¹⁷ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

¹⁸ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

¹⁹ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps

538

539 The first phase of Slavic settlement in the Eastern Alps, dated around 550, originated in
540 modern-day Moravia, from where Slavs moved southward into the former Roman province
541 of Noricum (modern-day Upper and Lower Austria regions). This movement expanded along
542 the valleys of Alpine rivers towards the Karawanks range and Poetovio (modern-day Ptuj),
543 with the decline of the local diocese recorded before 577.²⁰

544 The second phase of Slavic settlement began after the Lombards retreated into Northern
545 Italy in 568. The Lombards agreed to cede relinquished territories to their new allies, the
546 Avars, who became nominal rulers of both the Pannonian plain and the adjacent Eastern Alps
547 region. By 600, the Slavs had pushed through Istria and the Karst region towards Italy.²¹

548 The settlement process was furthered by German colonization of Austria, leading Slavs
549 to settle the entire Kras and the Gail valley between 600 and the 8th century. From there, they
550 penetrated Friuli in Val Canale and the secondary valleys, advancing even into the valleys of
551 the Degano, But, and Tagliamento rivers. Other areas of Slavic penetration included the
552 valleys of the Isonzo and Vipava rivers, with Slavs entering these areas in the 8th century.²²

553 During the 6th century, the ancestors of the Slovenes, now referred to by historians as
554 Alpine Slavs or proto-Slovenes, migrated up the Sava, Drava, and Mura river valleys into the
555 Eastern Alps and the Karst. Upon their arrival, they absorbed the existing Romano-Celtic-
556 Illyrian cultures.²³

557 In conclusion, the settlement of the Alpine Slavs in the Early Middle Ages can be
558 understood through a combination of political, cultural, and geographical factors. The
559 migrations were sparked by larger geopolitical shifts, including the movements of the Huns
560 and Germanic tribes, and the dissolution of the Roman Empire. The Slavic tribes then
561 adapted to and absorbed aspects of the cultures they encountered, leaving a lasting impact on
562 the region.

563 ChatGPT-4 w/ ScholarAI²⁴ (26 June 2023)²⁵

564 The settlement of the Alpine Slavs in the Early Middle Ages is a topic of considerable
565 historical and archaeological interest. The Slavic migration into the Alpine region was
566 influenced by a variety of factors, including socio-political dynamics, environmental
567 conditions, and cultural practices.

568 One of the key factors that facilitated the Slavic settlement in the Alpine region was the
569 decline of the Roman Empire. The weakening of Roman control over the region created a

²⁰ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

²¹ https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

²² https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps.

²³ <https://www.britannica.com/topic/Alpine-Slav>.

²⁴ Request to ScholarAI: { "keywords": "Alpine Slavs, settlement, Early Middle Ages", "query": "Alpine Slavs settlement in Early Middle Ages", "sort": "cited_by_count" }. Response from ScholarAI returned the following articles: doi:10.1080/14614103.2021.1911768; doi:10.5194/soil-7-269-2021; doi:10.3986/SMS.V15I1.1584; doi:10.1007/s12520-020-01103-4. ScholarAI retrieved the content of the following article: doi:10.3986/SMS.V15I1.1584.

²⁵ <https://chat.openai.com/share/b516ab80-033d-431d-a0c7-ff975b5552f2>.

570 power vacuum that the Slavs, among other groups, were able to exploit. The Slavs migrated
571 into the region, establishing settlements and gradually assimilating with the local population.

572 The Slavs' agricultural practices also played a significant role in their settlement. The
573 Slavs practiced a form of agriculture that was well-suited to the Alpine environment. They
574 cultivated a variety of crops, including cereals and legumes, and raised livestock. These
575 agricultural practices enabled the Slavs to establish stable, self-sustaining communities in the
576 region.

577 Cultural practices and beliefs also influenced the Slavic settlement. The Slavs' religious
578 and magical practices, for example, were deeply intertwined with their everyday life and their
579 relationship with the natural environment.²⁶ Archaeological evidence suggests that the Slavs
580 used amulets and other symbolic objects for protection against hostile forces and to imbue
581 themselves with the characteristics of certain animals. These practices may have helped the
582 Slavs to navigate the challenges of their new environment and to establish a sense of
583 belonging and identity in the region.

584 The Slavs' settlement in the Alpine region was not a singular event, but a complex
585 process that unfolded over several centuries. It was shaped by a multitude of factors, from the
586 broad socio-political dynamics of the time to the specific cultural practices and beliefs of the
587 Slavic people. Understanding this process requires a multidisciplinary approach, drawing on
588 historical, archaeological, and anthropological research.

589 For more detailed information, please refer to the following source: [Kajkowski, K.
590 (2013). The boar in the symbolic and religious system of the Baltic Slavs in the early Middle
591 Ages. *Studia Mythologica Slavica*, 16, 9-28.] ([https://ojs.zrc-
592 sazu.si/sms/article/download/1584/1326](https://ojs.zrc-sazu.si/sms/article/download/1584/1326))

593 Please note that there was an error while trying to save the citation to Zotero. Would you
594 like me to try again or proceed differently?

595 Bing Compose (2 July 2023; settings: *professional / blog / medium*)²⁷

596 The Alpine Slavs were a group of Slavic tribes who settled in the Eastern Alps region
597 during the 6th to 8th centuries AD. They are considered to be the ancestors of modern-day
598 Slovenes, as well as some other South Slavic peoples. But how did they get there and what
599 were the factors that influenced their migration and settlement?

600 According to historical sources and archaeological evidence, the Slavic settlement of the
601 Eastern Alps can be divided into two phases. The first phase began around 550 AD, when
602 some West Slavic tribes moved southward from their original homeland in Moravia,
603 following the rivers and valleys of the former Roman province of Noricum. They reached the
604 Karawanks mountain range and the area around Ptuj, where they encountered the remnants of
605 the Roman civilization and culture. [1] [2]

²⁶ L. 578-580 are technically original scientific contribution and are marked as such, but the argumentation is flawed (see main text, section 3.3).

²⁷ Bing Compose as used (Edge Version 114.0.1823.51, MacOS Ventura 13.3.1) disregarded instructions on tone and length in the prompt in favour of the preconfigured settings (e.g., short, medium, long for content length). Experimentally, we found that the used settings are generating the result most aligned with our intention regarding the length and style.

606 The second phase started after 568 AD, when the Lombards, a Germanic people who had
607 conquered most of Italy, left some of their territories in the Alps to their allies, the Avars. The
608 Avars were a nomadic people from Central Asia who had established a powerful empire in
609 the Pannonian plain and had subjugated many Slavic tribes under their rule. The Avars
610 allowed some of these Slavic tribes, mostly from the East Slavic branch, to move into the
611 vacated lands and to serve as a buffer zone against potential invaders. These Slavic tribes
612 settled in modern-day Carinthia, Styria, Friuli and Slovenia, where they mixed with the
613 earlier West Slavic settlers and the local Romanized population. [3] [4]

614 The Alpine Slavs developed their own distinctive culture and identity, influenced by
615 their diverse origins, their interaction with other peoples and their adaptation to the natural
616 environment. They formed tribal alliances and principalities, such as Carantania, which was
617 the first known Slavic state in history. They also preserved their pagan religion and customs
618 until they were gradually Christianized by missionaries from the Frankish kingdom and the
619 Byzantine empire in the 8th and 9th centuries. [5] [6]

620 The Alpine Slavs were thus an important part of the early medieval history of Europe
621 and played a significant role in the formation of the South Slavic nations. Their settlement of
622 the Eastern Alps was a complex and dynamic process that involved multiple factors, such as
623 political alliances, military conflicts, demographic movements, cultural exchanges and
624 environmental adaptations.

625 *References:*

626 [1] *Early Slavs - Wikipedia* https://en.wikipedia.org/wiki/Early_Slavs

627 [2] *Slavic settlement of the Eastern Alps - Wikipedia*
628 https://en.wikipedia.org/wiki/Slavic_settlement_of_the_Eastern_Alps

629 [3] *Alpine Slav | people | Britannica* <https://www.britannica.com/topic/Alpine-Slav>

630 [4] *History of Slovenia - Wikipedia* https://en.wikipedia.org/wiki/History_of_Slovenia

631 [5] *Carantania - Wikipedia* <https://en.wikipedia.org/wiki/Carantania>

632 [6] *Christianization of Slovenia - Wikipedia*
633 https://en.wikipedia.org/wiki/Christianization_of_Slovenia

634 Bard (8 June)

635 The scientific explanation for the settlement of Alpine Slavs in the Early Middle Ages is
636 a complex issue that has been debated by historians and archaeologists for many years. There
637 is no single, universally accepted explanation, but a number of factors are thought to have
638 contributed to the Slavic migration into the Alps.

639 One factor that may have played a role in the Slavic migration was the collapse of the
640 Western Roman Empire in the 5th century. The fall of the Roman Empire created a power
641 vacuum in Central and Eastern Europe, which allowed the Slavs to expand into the region.
642 The Slavs were a nomadic people who were skilled in agriculture and warfare. They were
643 also able to adapt to new environments, which made them well-suited to settling in the Alps.

644 Another factor that may have contributed to the Slavic migration was the Hunnic
645 invasions. The Huns were a nomadic people who invaded Central and Eastern Europe in the
646 4th and 5th centuries. They forced many people, including the Slavs, to migrate to new areas.
647 The Slavs may have migrated to the Alps in order to escape the Huns.

648 The Avar Khaganate was also a factor in the Slavic migration. The Avars were a
649 nomadic people who established a khaganate in Central Europe in the 6th century. They
650 allied themselves with the Slavs and helped them to expand into the Balkans. The Slavs may
651 have migrated to the Alps in order to join the Avars.

652 The Plague of Justinian was another factor that may have contributed to the Slavic
653 migration. The Plague of Justinian was a major epidemic that struck the Roman Empire in the
654 6th century. It is estimated that the plague killed up to half of the population of the empire.
655 This created a demographic void that the Slavs were able to fill. The Slavs may have
656 migrated to the Alps in order to find new land and resources.

657 The Late Antique Little Ice Age was a period of cooling that occurred in the 6th and 7th
658 centuries. It is believed that this period of climate change may have led to crop failures and
659 famine, which may have forced people to migrate in search of food. The Slavs may have
660 migrated to the Alps in order to escape the effects of the Little Ice Age.

661 The Slavic migration into the Alps had a profound impact on the region. The Slavs
662 brought their own language, culture, and religion to the Alps, and they eventually displaced
663 the native populations. The Slavic languages are now spoken by the majority of people in the
664 Alps, and the region's culture is heavily influenced by Slavic traditions.

665 References

- 666 • Barford, P. M. *The Early Slavs: Culture and Society in Early Medieval Europe*.
667 Cambridge University Press, 2001.
- 668 • Curta, Florin. *The Making of the Slavs: History and Archaeology of the Early Slavs*.
669 Cambridge University Press, 2001.
- 670 • Ward-Perkins, Bryan. *The Fall of Rome: A New History*. Oxford University Press,
671 2005.

672 In addition to the above, here are some other sources that provide more information on
673 the settlement of Alpine Slavs in the Early Middle Ages:

- 674 • "The Migration of the Slavs" by Thomas M. Pryor (The Catholic Encyclopedia)
- 675 • "The Alpine Slavs" by Florin Curta (The Oxford Handbook of Medieval
676 Archaeology)
- 677 • "The Slavic Settlement of the Alps" by Thomas L. Markey (Slavic Review)

678 Aria (22 June 2023)

679 The settlement of [Alpine Slavs]²⁸ in Early Middle Ages is a topic of interest for
680 historians and scholars. The [Alpine Slavs]²⁹, also known as the Western Slavs, settled in the
681 Alpine region of [Central Europe]³⁰ during the 6th and 7th centuries. This settlement had a
682 significant impact on the development of the region and its people, and has been the subject
683 of much debate and speculation.

²⁸ (<https://www.google.com/search?q=Alpine%20Slavs>)

²⁹ (<https://www.google.com/search?q=Alpine%20Slavs>)

³⁰ (<https://www.google.com/search?q=Central%20Europe>)

684 One of the primary reasons for the settlement of the [Alpine Slavs]³¹ was the expansion
685 of the [Frankish Empire]³² in the region. The [Franks]³³, a Germanic tribe, had established a
686 powerful empire in Western Europe in the 5th and 6th centuries. The [Franks]³⁴ were known
687 for their aggressive expansion and conquests, and they put pressure on the surrounding tribes
688 to either submit to their rule or be conquered. This pressure likely contributed to the
689 settlement of the [Alpine Slavs]³⁵ in the region, where they could establish a new homeland
690 away from the [Franks]³⁶.

691 Another important factor in the settlement of the [Alpine Slavs]³⁷ was the political
692 instability and fragmentation of the region at the time. The collapse of the [Western Roman
693 Empire]³⁸ had left a power vacuum in [Central Europe]³⁹, and various tribes and peoples were
694 vying for control. The [Alpine Slavs]⁴⁰ likely saw the Alpine region as an opportunity to
695 establish a new homeland and gain more political power and autonomy.

696 Additionally, the [Alpine Slavs]⁴¹ were attracted to the fertile land and favorable climate
697 of the region. The Alpine region offered many opportunities for agriculture and trade, and the
698 [Alpine Slavs]⁴² were able to establish a prosperous society in the region.

699 There is also evidence to suggest that the settlement of the [Alpine Slavs]⁴³ was driven by
700 cultural and religious factors. The [Alpine Slavs]⁴⁴ were pagan at the time of their settlement,
701 but they quickly adopted [Christianity]⁴⁵ after their arrival in the region. This suggests that
702 they may have been attracted to the Christian culture and traditions of the region.

703 In conclusion, the settlement of [Alpine Slavs]⁴⁶ in Early Middle Ages was likely driven
704 by a combination of political, economic, and cultural factors. The pressure from the [Frankish
705 Empire]⁴⁷, the political instability of the region, and the attractive land and climate of the
706 Alpine region all played a role in the settlement. Additionally, the cultural and religious

³¹ (<https://www.google.com/search?q=Alpine%20Slavs>)

³² (<https://www.google.com/search?q=Frankish%20Empire>)

³³ (<https://www.google.com/search?q=Franks>)

³⁴ (<https://www.google.com/search?q=Franks>)

³⁵ (<https://www.google.com/search?q=Alpine%20Slavs>)

³⁶ (<https://www.google.com/search?q=Franks>)

³⁷ (<https://www.google.com/search?q=Alpine%20Slavs>)

³⁸ (<https://www.google.com/search?q=Western%20Roman%20Empire>)

³⁹ (<https://www.google.com/search?q=Central%20Europe>)

⁴⁰ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴¹ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴² (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴³ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴⁴ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴⁵ (<https://www.google.com/search?q=Christianity>)

⁴⁶ (<https://www.google.com/search?q=Alpine%20Slavs>)

⁴⁷ (<https://www.google.com/search?q=Frankish%20Empire>)

707 traditions of the region may have played a role in the [Alpine Slavs]¹⁴⁸ decision to settle.
708 Further research is needed to fully understand the motivations and causes of this settlement.

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711 *Danube Region, c. 500-700*. Cambridge University Press.

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716 Claude 2 (26 July 2023)

717 Here is a 499 word essay on the scientific explanation for the settlement of Alpine Slavs
718 in the Early Middle Ages:

719

720 The settlement of Slavic peoples into the Eastern Alps during the Early Middle Ages (c.
721 550-800 CE) transformed the demographic makeup of the region. Scientifically, this
722 migration can be understood through push and pull factors, material evidence, and linguistic
723 shifts.

724 By the 6th century CE, Slavic groups inhabited areas north and east of the Alps, in
725 modern-day Poland, Czechia, Slovakia and Ukraine. Environmental and political pressures
726 encouraged their migration westwards. A colder, drier climate made agriculture more
727 difficult, while growing population density strained local resources. The power vacuum left
728 by the collapse of the Western Roman Empire also enabled Slavs to move into former Roman
729 provinces to establish new settlements.

730 At the same time, the Alpine region offered attractive conditions for incoming migrants.
731 The milder climate, abundant water sources, fertile valleys and pastures were conducive to
732 farming and herding. Depopulation of Roman settlements due to war, disease and migration
733 meant Slavs could occupy abandoned areas. Geographic proximity to Slavic homelands in the
734 Carpathian Basin, Moravia and Lower Austria also enabled feasible migration into the
735 Eastern Alps.

736 Archaeological evidence demonstrates Slavic settlement in the Eastern Alps from the
737 late 6th century CE. Distinctively Slavic pottery, tools, jewelry and funerary rites appear at
738 sites across modern-day Austria, Slovenia, northern Italy and southern Germany. Slavic
739 agricultural terracing and stone huts have also been identified. These material artifacts
740 directly reflect the migration and integration of Slavic communities in Alpine areas.

741 Linguistic shifts also attest to Slavic migration. The introduction of Slavic dialects like
742 Slovenian provides clear evidence of Slavic language penetration into Alpine Europe. Place
743 names of Slavic origin became common across the region. Records show Christian
744 missionaries needed to preach in Slavic languages to effectively convert Alpine Slavs,
745 demonstrating their demographic dominance.

⁴⁸ (<https://www.google.com/search?q=Alpine%20Slavs>)

746 In summary, an interdisciplinary analysis of environmental pressures, geographic
747 incentives, archaeological artifacts and linguistic changes provides robust scientific evidence
748 for the westward migration and large-scale settlement of Slavic groups in the Eastern Alps
749 during the Early Middle Ages. This mass migration reshaped the ethnic character and cultural
750 heritage of the Alpine region in a profound way that remains evident today.

751

752 **References:**

753 Curta, Florin. *Southeastern Europe in the Middle Ages, 500-1250*. Cambridge:
754 Cambridge University Press, 2006.

755 Human expert (B. Štular, 8 June 2023)

756 Alpine Slavs is the term used in historiography and archaeology to describe the Slavic-
757 speaking Early Mediaeval population of the Eastern Alps.

758 The migration of the Alpine Slavs can only be discussed in the context of the general
759 Slavic migration. The rapid spread of the Slavic language between about 400 and 850 CE
760 remains a controversial topic. There are two main reasons for this. First, the lack of first-hand
761 written sources before the end of the ninth century. Second, the archaeological evidence on
762 the subject is sparse compared to many other Early Medieval "peoples".

763 Currently, there are three main hypotheses. The first assumes that speakers moved in all
764 directions from their small original habitat, the so-called *Urheimat* (1). The second assumes
765 the diffusion of the Slavic cultural model among non-Slavic populations or, in its extreme
766 form, the diffusion of language alone (2). Many archaeologists adhere to the third, hybrid
767 hypothesis. The hybrid hypothesis states that movement, cultural diffusion, and language
768 diffusion occurred simultaneously. This is supported by recent research in population
769 genetics and linguistics. It seems that the language spread in the West Slavic zone mainly by
770 migration to sparsely populated areas, and in the East Slavic zone by a combination of
771 migration and language shift. The spread in the South Slavic region was triggered by
772 migration, but the main mechanism for further spread was a language shift from local Balkan
773 idioms to Slavic (3).

774 In a recent paper (4) the migration of Alpine Slavs was described as a combination of
775 movement of people, cultural diffusion, and language diffusion, all occurring simultaneously.
776 The immigrants were defined as speakers of Slavic and shared specific "Slavic" ancestry.
777 Two founder populations migrated to the Eastern Alps: The first after c. 500 and the second
778 before c. 700 CE. The number of migrating people was relatively small and more akin to a
779 small group infiltration than a mass migration. This study, based on the convergence of
780 evidence from archaeology, linguistics, and population genetics, confirmed the validity of the
781 hybrid hypothesis of Slavic migration with archaeological data.

782 It must be emphasised, however, that the events that occurred after the migration were
783 historically the most important and that the decisive acculturation process was cultural
784 diffusion, including the language shift from local idioms to Slavic.

785 As another important study has shown (5), there is no evidence of a state of tranquillity
786 and social rigidity before or after the arrival of the Slavs. Rather, the population of the
787 Eastern Alps was a dynamic system in constant flux. In the 7th century, after the migration of
788 Slavs, the population of the Eastern Alps was socially, ethnically, and politically very

789 heterogeneously composed. A centralised rule of a single dynasty in a hegemonic position
790 cannot be discerned.

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801 time pattern mining of an archaeological data set, *PLOS ONE* 17 (9), e0274687.

802 (5) EichertEichert, S. 2014, "Great Men", "Big Men" und "Chiefs" in Karantanien? Ein
803 etwas anderer Blickwinkel auf frühmittelalterliche Herrschafts- und Organisationsstrukturen,
804 *Carinthia I* 204, 61-78.

805 **Additional suggested reading**

806 Pleterski, A. Etnogeneza slavena – metode i proces, *Starohrvatska prosvjeta*, 40, pp. 8–
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808 Korošec, P. Zgodnjesrednjeveška arheološka slika karantanskih Slovanov =
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810 1979.

1 Appendix C: Prompt to ChatGPT-4 in Slovenian

2

3 Kakšna je znanstvena razlaga naselitve alpskih Slovanov v zgodnjem srednjem veku?
4 Napišite 500 besed v uradnem jeziku in po možnosti navedite reference.¹

5

6 Naselitev Slovanov v alpsko regijo v zgodnjem srednjem veku je kompleksen zgodovinski
7 proces, ki ga znanstveniki še vedno raziskujejo. Zgodovinarji se strinjajo, da so se Slovani
8 začeli širiti proti zahodu in jugu v 5. in 6. stoletju n.š., potem ko so se v 4. stoletju znašli pod
9 oblastjo Hunov.

10 Slovani so se v času velike selitve narodov razširili v številne regije Evrope, vključno z alpsko
11 regijo, ki je danes znana kot Slovenija. Ta migracijski val se je začel okoli leta 550 in se
12 nadaljeval do začetka 8. stoletja.

13 Natančni vzroki za selitev Slovanov so predmet številnih razprav med zgodovinarji. Nekateri
14 trdijo, da so se Slovani v alpsko regijo preselili zaradi pritiska Avarov na vzhodu, drugi pa, da
15 so se odločili za selitev zaradi privlačnosti rodovitnih kraških polj in pogojev, ki so bili ugodni
16 za kmetovanje.

17 Tudi vloga Bizantinskega cesarstva pri tej migraciji ni povsem jasna. Nekateri zgodovinarji
18 menijo, da je Bizantinsko cesarstvo morda spodbujalo selitev Slovanov na svoja zahodna
19 ozemlja, da bi zmanjšalo pritisk Langobardov.

20 V 7. stoletju so se slovanska plemena v alpski regiji združila pod vodstvom kneza Samona. To
21 obdobje je pomembno, saj je označilo začetek slovenske etnogeneze in oblikovanja
22 slovenskega naroda.

23 Pomembne reference na to temo vključujejo dela Pleterskega "Naselitvena zgodovina
24 Slovanov" (1980), Curta "Making of the Slavs: History and Archaeology of the Lower Danube
25 Region" (2001) in Barford "The Early Slavs" (2001). Ti avtorji podrobno obravnavajo številne
26 aspekte slovanske migracije, vključno s kulturnimi, ekonomskimi in političnimi dejavniki, ki so
27 vplivali na ta zgodovinski proces.

28 Zgodovina slovanske migracije v alpsko regijo je še vedno polna neznank, vendar je jasno, da
29 je ta proces ključen za razumevanje zgodovine Slovencev in njihovega mesta v evropski
30 zgodovini.

31 Opomba: To je splošni povzetek, ki je na podlagi trenutnega razumevanja na temo. Za bolj
32 podroben vpogled v to vprašanje priporočam branje omenjenih referenc in posvet z
33 zgodovinskimi strokovnjaki.

34

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