Seismic source zone delineation for hazard calculations in Finland

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These seismic source zones were developed and used in the “Mitigation of induced seismic risk in urban environments (SEISRISK) project” (Project no. 337913, 338075 and 339670 of the Academy of Finland). The data files contain two levels of conceptualization of seismic source zones or areas (SSA’s). The most detailed SSA conceptualization is shown in Figure 1.

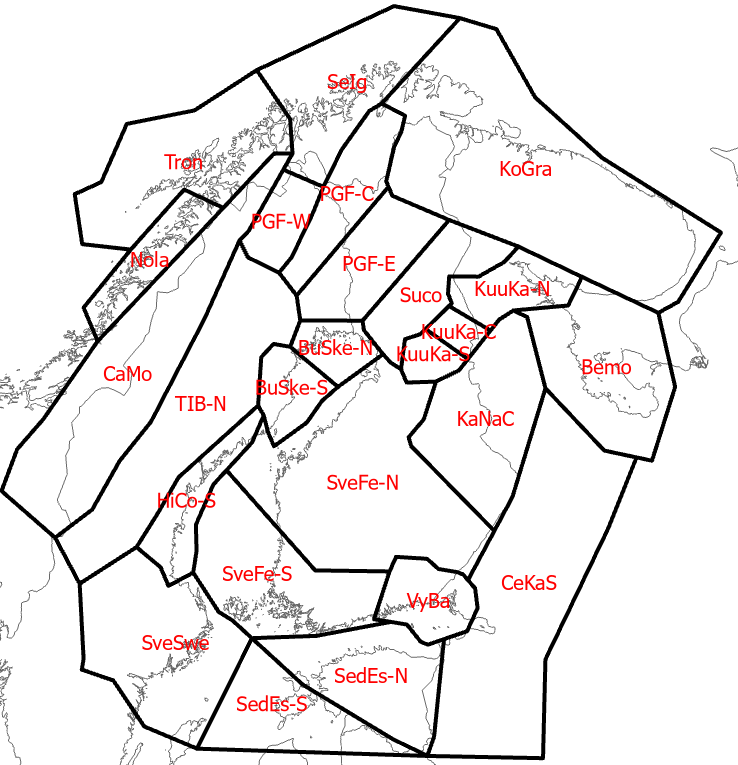


Figure 1. Base SSA distribution (i.e. micro-level conceptualization)

Some SSAs can be considered conceptually related. These are the PGF, KuuKa, BuSke, SveFe and SedEs zones shown united in Figure 2.

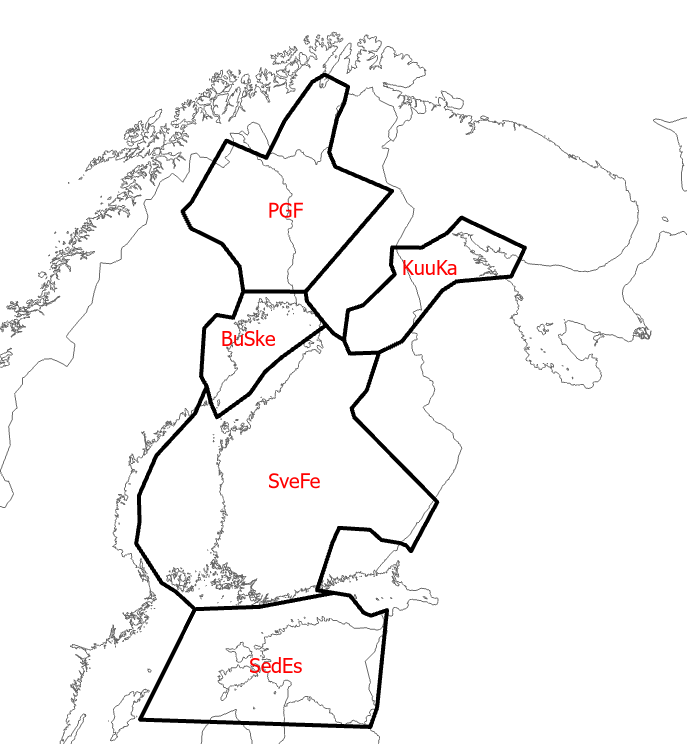


Figure 2. Conceptually related SSA’s (i.e. micro-united conceptualization)

Data to reproduce Figure 1. Base SSA distribution (i.e. micro-level conceptualization)

|  |  |  |
| --- | --- | --- |
| **SSA name** | **Longitude** | **Latitude** |
| BuSke-S | 19.9895 | 64.2271 |
| BuSke-S | 19.8863 | 65.1789 |
| BuSke-S | 20.3906 | 65.4655 |
| BuSke-S | 21.19 | 65.4413 |
| BuSke-S | 23.5522 | 64.7238 |
| BuSke-S | 22.8531 | 64.4254 |
| BuSke-S | 22.24739208 | 63.98451363 |
| BuSke-S | 20.8842 | 63.4627 |
| BuSke-S | 20.5613 | 63.7228 |
| BuSke-S | 20.2901 | 64.0466 |
| BuSke-S | 19.9895 | 64.2271 |
| BuSke-N | 21.19 | 65.4413 |
| BuSke-N | 21.5578 | 65.9767 |
| BuSke-N | 24.5655 | 66.0476 |
| BuSke-N | 24.6485 | 65.863 |
| BuSke-N | 25.5921 | 65.4 |
| BuSke-N | 23.5522 | 64.7238 |
| BuSke-N | 21.19 | 65.4413 |
| Nola | 12.26159231 | 64.93308299 |
| Nola | 11.24967209 | 65.50668439 |
| Nola | 12.8 | 66.83 |
| Nola | 14.5 | 68 |
| Nola | 14.82959631 | 68.20062733 |
| Nola | 17.02055577 | 67.98549262 |
| Nola | 12.26159231 | 64.93308299 |
| KuuKa-S | 26.4488 | 65.1104 |
| KuuKa-S | 26.6264 | 65.7032 |
| KuuKa-S | 27.34855013 | 65.7989893 |
| KuuKa-S | 27.61184017 | 65.9028083 |
| KuuKa-S | 29.59551269 | 65.28914022 |
| KuuKa-S | 29.1582 | 65.0741 |
| KuuKa-S | 28.07357352 | 64.86318622 |
| KuuKa-S | 26.71281986 | 64.84849865 |
| KuuKa-S | 26.4488 | 65.1104 |
| KuuKa-C | 27.61184017 | 65.9028083 |
| KuuKa-C | 28.77601975 | 66.34503025 |
| KuuKa-C | 30.735189 | 65.82761961 |
| KuuKa-C | 29.59551269 | 65.28914022 |
| KuuKa-C | 27.61184017 | 65.9028083 |
| KuuKa-N | 28.77601975 | 66.34503025 |
| KuuKa-N | 28.91481942 | 66.39619233 |
| KuuKa-N | 28.7428 | 66.5881 |
| KuuKa-N | 28.8265 | 66.929 |
| KuuKa-N | 30.3 | 66.9 |
| KuuKa-N | 31.6412 | 67.1562 |
| KuuKa-N | 32.42155831 | 67.43531854 |
| KuuKa-N | 35.43308283 | 66.70422059 |
| KuuKa-N | 34.57915651 | 66.18194736 |
| KuuKa-N | 31.9017 | 66.1906 |
| KuuKa-N | 31.18268889 | 66.0307279 |
| KuuKa-N | 30.735189 | 65.82761961 |
| KuuKa-N | 28.77601975 | 66.34503025 |
| SedEs-N | 26.12873284 | 60.13006834 |
| SedEs-N | 26.7682 | 60.081 |
| SedEs-N | 27.3044 | 59.7443 |
| SedEs-N | 27.5823 | 59.6827 |
| SedEs-N | 28.22118186 | 59.7879944 |
| SedEs-N | 27.78749095 | 57.86861053 |
| SedEs-N | 27.53214988 | 57.48967007 |
| SedEs-N | 26.24330032 | 57.82631424 |
| SedEs-N | 22.81028995 | 58.82995776 |
| SedEs-N | 20.72536075 | 59.66216254 |
| SedEs-N | 23.22697788 | 59.80343652 |
| SedEs-N | 26.12873284 | 60.13006834 |
| VyBa | 26.12873284 | 60.13006834 |
| VyBa | 25.4648 | 60.1776 |
| VyBa | 26.0543 | 61.1242 |
| VyBa | 26.3114 | 61.4124 |
| VyBa | 27.584 | 61.3759 |
| VyBa | 28.0502 | 61.1713 |
| VyBa | 28.7819 | 61.1048 |
| VyBa | 29.043 | 61.0546 |
| VyBa | 29.23661989 | 60.93832475 |
| VyBa | 29.5107 | 60.7718 |
| VyBa | 29.5806 | 60.3791 |
| VyBa | 29.1305 | 59.9314 |
| VyBa | 28.22118186 | 59.7879944 |
| VyBa | 27.5823 | 59.6827 |
| VyBa | 27.3044 | 59.7443 |
| VyBa | 26.7682 | 60.081 |
| VyBa | 26.12873284 | 60.13006834 |
| HiCo-S | 18.12233313 | 60.81168811 |
| HiCo-S | 17.22033468 | 60.48303424 |
| HiCo-S | 16.79144002 | 60.82257585 |
| HiCo-S | 15.7018 | 61.1343 |
| HiCo-S | 16.3157 | 61.8439 |
| HiCo-S | 16.948 | 62.6194 |
| HiCo-S | 19.9895 | 64.2271 |
| HiCo-S | 20.2901 | 64.0466 |
| HiCo-S | 19.9043 | 63.4937 |
| HiCo-S | 18.9410073 | 62.89078306 |
| HiCo-S | 18.4615 | 62.5789 |
| HiCo-S | 17.9641 | 61.7514 |
| HiCo-S | 18.13861712 | 61.23658796 |
| HiCo-S | 18.12233313 | 60.81168811 |
| SveFe-S | 23.02673163 | 61.0896745 |
| SveFe-S | 26.0543 | 61.1242 |
| SveFe-S | 25.4648 | 60.1776 |
| SveFe-S | 26.12873284 | 60.13006834 |
| SveFe-S | 23.22697788 | 59.80343652 |
| SveFe-S | 20.72536075 | 59.66216254 |
| SveFe-S | 19.90164719 | 59.97068906 |
| SveFe-S | 19.32527154 | 60.10753591 |
| SveFe-S | 18.12233313 | 60.81168811 |
| SveFe-S | 18.13861712 | 61.23658796 |
| SveFe-S | 17.9641 | 61.7514 |
| SveFe-S | 18.4615 | 62.5789 |
| SveFe-S | 18.9410073 | 62.89078306 |
| SveFe-S | 23.02673163 | 61.0896745 |
| CeKaS | 29.23661989 | 60.93832475 |
| CeKaS | 30.4047311 | 61.88368514 |
| CeKaS | 31.252527 | 62.531555 |
| CeKaS | 33.09325951 | 64.60914249 |
| CeKaS | 35.38949996 | 63.26172615 |
| CeKaS | 36.73656989 | 63.03905847 |
| CeKaS | 35.12124529 | 61.72543365 |
| CeKaS | 32.11422672 | 59.29458313 |
| CeKaS | 31.75306182 | 57.35663879 |
| CeKaS | 27.53214988 | 57.48967007 |
| CeKaS | 27.78749095 | 57.86861053 |
| CeKaS | 28.22118186 | 59.7879944 |
| CeKaS | 29.1305 | 59.9314 |
| CeKaS | 29.5806 | 60.3791 |
| CeKaS | 29.5107 | 60.7718 |
| CeKaS | 29.23661989 | 60.93832475 |
| Bemo | 32.54408853 | 66.04052825 |
| Bemo | 31.9017 | 66.1906 |
| Bemo | 34.58668326 | 66.17998717 |
| Bemo | 35.43308283 | 66.70422059 |
| Bemo | 38.821933 | 65.76439852 |
| Bemo | 38.94370909 | 64.27499099 |
| Bemo | 37.37305527 | 62.9281943 |
| Bemo | 36.73656989 | 63.03905847 |
| Bemo | 35.38949996 | 63.26172615 |
| Bemo | 33.09325951 | 64.60914249 |
| Bemo | 32.54408853 | 66.04052825 |
| Tron | 19.96699117 | 69.89735771 |
| Tron | 20.3169 | 69.2299 |
| Tron | 19.2944 | 69.1834 |
| Tron | 17.02055577 | 67.98549262 |
| Tron | 14.82959631 | 68.20062733 |
| Tron | 14.5 | 68 |
| Tron | 12.8 | 66.83 |
| Tron | 10.4 | 66.7 |
| Tron | 9.35 | 67.6 |
| Tron | 10.500146 | 67.970089 |
| Tron | 11.00316741 | 69.20053845 |
| Tron | 14.50650911 | 69.76428833 |
| Tron | 17.6524697 | 70.76246194 |
| Tron | 19.96699117 | 69.89735771 |
| SeIg | 25.78616247 | 72.25519736 |
| SeIg | 29.99863 | 72.000027 |
| SeIg | 25.1736 | 70.3313 |
| SeIg | 24.4771 | 70.1789 |
| SeIg | 23.0131 | 69.3821 |
| SeIg | 22.1687 | 68.6326 |
| SeIg | 19.91552551 | 68.89287973 |
| SeIg | 20.3169 | 69.2299 |
| SeIg | 19.96699117 | 69.89735771 |
| SeIg | 17.6524697 | 70.76246194 |
| SeIg | 25.78616247 | 72.25519736 |
| PGF-W | 22.1687 | 68.6326 |
| PGF-W | 21.7109 | 68.0833 |
| PGF-W | 20.8389 | 67.195 |
| PGF-W | 20.2931 | 66.869 |
| PGF-W | 18.65348643 | 67.09307042 |
| PGF-W | 18.10419081 | 67.40198033 |
| PGF-W | 18.499656 | 67.610134 |
| PGF-W | 19.91552551 | 68.89287973 |
| PGF-W | 22.1687 | 68.6326 |
| PGF-C | 25.95542626 | 69.48798547 |
| PGF-C | 25.5520516 | 68.80359764 |
| PGF-C | 25.68406554 | 68.69845407 |
| PGF-C | 21.2729 | 66.4571 |
| PGF-C | 20.2931 | 66.869 |
| PGF-C | 20.8389 | 67.195 |
| PGF-C | 21.7109 | 68.0833 |
| PGF-C | 22.1687 | 68.6326 |
| PGF-C | 23.0131 | 69.3821 |
| PGF-C | 24.4771 | 70.1789 |
| PGF-C | 25.1736 | 70.3313 |
| PGF-C | 26.5554 | 70.1035 |
| PGF-C | 26.3384 | 69.772 |
| PGF-C | 25.95542626 | 69.48798547 |
| PGF-E | 25.9031214 | 68.52153302 |
| PGF-E | 28.91006678 | 68.03882889 |
| PGF-E | 24.5655 | 66.0476 |
| PGF-E | 21.5578 | 65.9767 |
| PGF-E | 21.2729 | 66.4571 |
| PGF-E | 25.68406554 | 68.69845407 |
| PGF-E | 25.9031214 | 68.52153302 |
| Suco | 28.91006678 | 68.03882889 |
| Suco | 32.42155831 | 67.43531854 |
| Suco | 31.6412 | 67.1562 |
| Suco | 30.3 | 66.9 |
| Suco | 28.8265 | 66.929 |
| Suco | 28.7428 | 66.5881 |
| Suco | 28.91481942 | 66.39619233 |
| Suco | 28.77601975 | 66.34503025 |
| Suco | 27.61184017 | 65.9028083 |
| Suco | 27.34855013 | 65.7989893 |
| Suco | 26.6264 | 65.7032 |
| Suco | 26.4488 | 65.1104 |
| Suco | 25.9722 | 65.2351 |
| Suco | 25.5921 | 65.4 |
| Suco | 24.6485 | 65.863 |
| Suco | 24.5655 | 66.0476 |
| Suco | 28.91006678 | 68.03882889 |
| KoGra | 32.25018003 | 71.73573189 |
| KoGra | 34.16275882 | 70.31912536 |
| KoGra | 37.42032442 | 68.95345351 |
| KoGra | 42.67272912 | 67.03248031 |
| KoGra | 39.85679256 | 65.89983911 |
| KoGra | 38.821933 | 65.76439852 |
| KoGra | 35.43308283 | 66.70422059 |
| KoGra | 32.42155831 | 67.43531854 |
| KoGra | 28.91006678 | 68.03882889 |
| KoGra | 25.9031214 | 68.52153302 |
| KoGra | 25.68406554 | 68.69845407 |
| KoGra | 25.5520516 | 68.80359764 |
| KoGra | 25.95542626 | 69.48798547 |
| KoGra | 26.3384 | 69.772 |
| KoGra | 26.5554 | 70.1035 |
| KoGra | 25.1736 | 70.3313 |
| KoGra | 29.99863 | 72.000027 |
| KoGra | 32.25018003 | 71.73573189 |
| TIB-N | 18.10419082 | 67.40198033 |
| TIB-N | 18.65348643 | 67.09307042 |
| TIB-N | 20.2931 | 66.869 |
| TIB-N | 21.2729 | 66.4571 |
| TIB-N | 21.5578 | 65.9767 |
| TIB-N | 21.19 | 65.4413 |
| TIB-N | 20.3906 | 65.4655 |
| TIB-N | 19.8863 | 65.1789 |
| TIB-N | 19.9895 | 64.2271 |
| TIB-N | 16.948 | 62.6194 |
| TIB-N | 16.3157 | 61.8439 |
| TIB-N | 15.7018 | 61.1343 |
| TIB-N | 13.74113819 | 60.22254186 |
| TIB-N | 12.4 | 61 |
| TIB-N | 13.63249674 | 61.69409573 |
| TIB-N | 14.34827573 | 62.73334637 |
| TIB-N | 15.36611174 | 63.60535658 |
| TIB-N | 16.98222436 | 65.77976009 |
| TIB-N | 18.10419082 | 67.40198033 |
| SveFe-N | 27.4937 | 64.1214 |
| SveFe-N | 26.8124 | 63.7704 |
| SveFe-N | 26.92984656 | 63.59605784 |
| SveFe-N | 30.4047311 | 61.88368514 |
| SveFe-N | 29.23661989 | 60.93832475 |
| SveFe-N | 29.043 | 61.0546 |
| SveFe-N | 28.7819 | 61.1048 |
| SveFe-N | 28.0502 | 61.1713 |
| SveFe-N | 27.584 | 61.3759 |
| SveFe-N | 26.3114 | 61.4124 |
| SveFe-N | 26.0543 | 61.1242 |
| SveFe-N | 23.02673163 | 61.0896745 |
| SveFe-N | 18.9410073 | 62.89078306 |
| SveFe-N | 19.9043 | 63.4937 |
| SveFe-N | 20.2901 | 64.0466 |
| SveFe-N | 20.5613 | 63.7228 |
| SveFe-N | 20.8842 | 63.4627 |
| SveFe-N | 22.24739208 | 63.98451363 |
| SveFe-N | 22.8531 | 64.4254 |
| SveFe-N | 23.5522 | 64.7238 |
| SveFe-N | 25.5921 | 65.4 |
| SveFe-N | 25.9722 | 65.2351 |
| SveFe-N | 26.4488 | 65.1104 |
| SveFe-N | 26.71281986 | 64.84849865 |
| SveFe-N | 28.07357352 | 64.86318622 |
| SveFe-N | 27.4937 | 64.1214 |
| KaNaC | 28.07357352 | 64.86318622 |
| KaNaC | 29.1582 | 65.0741 |
| KaNaC | 29.59551269 | 65.28914022 |
| KaNaC | 30.735189 | 65.82761961 |
| KaNaC | 31.18268889 | 66.0307279 |
| KaNaC | 31.9017 | 66.1906 |
| KaNaC | 32.54408853 | 66.04052825 |
| KaNaC | 33.09325951 | 64.60914249 |
| KaNaC | 31.252527 | 62.531555 |
| KaNaC | 30.4047311 | 61.88368514 |
| KaNaC | 26.92984656 | 63.59605784 |
| KaNaC | 26.8124 | 63.7704 |
| KaNaC | 27.4937 | 64.1214 |
| KaNaC | 28.07357352 | 64.86318622 |
| SedEs-N | 20.72536075 | 59.66216254 |
| SedEs-N | 22.81028995 | 58.82995776 |
| SedEs-N | 26.24330032 | 57.82631424 |
| SedEs-N | 27.53214988 | 57.48967007 |
| SedEs-N | 19.11262828 | 57.38672997 |
| SedEs-N | 20.72536075 | 59.66216254 |
| SveSwe | 16.79144002 | 60.82257585 |
| SveSwe | 17.22033468 | 60.48303424 |
| SveSwe | 18.12233313 | 60.81168811 |
| SveSwe | 19.32527154 | 60.10753591 |
| SveSwe | 19.90164719 | 59.97068906 |
| SveSwe | 20.72536075 | 59.66216254 |
| SveSwe | 19.11262828 | 57.38672997 |
| SveSwe | 17.09186673 | 57.68379555 |
| SveSwe | 15.69497591 | 58.47998495 |
| SveSwe | 14.45904361 | 58.57921539 |
| SveSwe | 14.45405797 | 58.78558894 |
| SveSwe | 13.74113819 | 60.22254186 |
| SveSwe | 15.7018 | 61.1343 |
| SveSwe | 16.79144002 | 60.82257585 |
| CaMo | 10.75419276 | 63.20195655 |
| CaMo | 12.26159231 | 64.93308299 |
| CaMo | 17.02055577 | 67.98549262 |
| CaMo | 19.2944 | 69.1834 |
| CaMo | 20.3169 | 69.2299 |
| CaMo | 18.499656 | 67.610134 |
| CaMo | 18.10419081 | 67.40198033 |
| CaMo | 16.98222436 | 65.77976009 |
| CaMo | 15.36611174 | 63.60535658 |
| CaMo | 14.34827573 | 62.73334637 |
| CaMo | 13.63249674 | 61.69409573 |
| CaMo | 12.4 | 61 |
| CaMo | 9.82644183 | 61.63220916 |
| CaMo | 10 | 62.5 |
| CaMo | 10.75419276 | 63.20195655 |

Data to reproduce Figure 2. Conceptually related SSA’s (i.e. micro-united conceptualization)

|  |  |  |
| --- | --- | --- |
| **SSA name** | **Longitude** | **Latitude** |
| PGF | 25.68406554 | 68.69845407 |
| PGF | 25.9031214 | 68.52153302 |
| PGF | 28.91006678 | 68.03882889 |
| PGF | 24.5655 | 66.0476 |
| PGF | 21.5578 | 65.9767 |
| PGF | 21.2729 | 66.4571 |
| PGF | 20.2931 | 66.869 |
| PGF | 18.65348643 | 67.09307042 |
| PGF | 18.10419081 | 67.40198033 |
| PGF | 18.499656 | 67.610134 |
| PGF | 19.91552551 | 68.89287973 |
| PGF | 22.1687 | 68.6326 |
| PGF | 23.0131 | 69.3821 |
| PGF | 24.4771 | 70.1789 |
| PGF | 25.1736 | 70.3313 |
| PGF | 26.5554 | 70.1035 |
| PGF | 26.3384 | 69.772 |
| PGF | 25.95542626 | 69.48798547 |
| PGF | 25.5520516 | 68.80359764 |
| PGF | 25.68406554 | 68.69845407 |
| KuuKa | 32.42155831 | 67.43531854 |
| KuuKa | 35.43308283 | 66.70422059 |
| KuuKa | 34.58668326 | 66.17998717 |
| KuuKa | 31.9017 | 66.1906 |
| KuuKa | 31.18268889 | 66.0307279 |
| KuuKa | 30.735189 | 65.82761961 |
| KuuKa | 29.59551269 | 65.28914022 |
| KuuKa | 29.1582 | 65.0741 |
| KuuKa | 28.07357352 | 64.86318622 |
| KuuKa | 26.71281986 | 64.84849865 |
| KuuKa | 26.4488 | 65.1104 |
| KuuKa | 26.6264 | 65.7032 |
| KuuKa | 27.34855013 | 65.7989893 |
| KuuKa | 27.61184017 | 65.9028083 |
| KuuKa | 28.77601975 | 66.34503025 |
| KuuKa | 28.91481942 | 66.39619233 |
| KuuKa | 28.7428 | 66.5881 |
| KuuKa | 28.8265 | 66.929 |
| KuuKa | 30.3 | 66.9 |
| KuuKa | 31.6412 | 67.1562 |
| KuuKa | 32.42155831 | 67.43531854 |
| BuSke | 24.6485 | 65.863 |
| BuSke | 25.5921 | 65.4 |
| BuSke | 23.5522 | 64.7238 |
| BuSke | 22.8531 | 64.4254 |
| BuSke | 22.24739208 | 63.98451363 |
| BuSke | 20.8842 | 63.4627 |
| BuSke | 20.5613 | 63.7228 |
| BuSke | 20.2901 | 64.0466 |
| BuSke | 19.9895 | 64.2271 |
| BuSke | 19.8863 | 65.1789 |
| BuSke | 20.3906 | 65.4655 |
| BuSke | 21.19 | 65.4413 |
| BuSke | 21.5578 | 65.9767 |
| BuSke | 24.5655 | 66.0476 |
| BuSke | 24.6485 | 65.863 |
| SedEs | 27.3044 | 59.7443 |
| SedEs | 27.5823 | 59.6827 |
| SedEs | 28.22118186 | 59.7879944 |
| SedEs | 27.78749095 | 57.86861053 |
| SedEs | 27.53214988 | 57.48967007 |
| SedEs | 19.11262828 | 57.38672997 |
| SedEs | 20.72536075 | 59.66216254 |
| SedEs | 23.22697788 | 59.80343652 |
| SedEs | 26.12873284 | 60.13006834 |
| SedEs | 26.7682 | 60.081 |
| SedEs | 27.3044 | 59.7443 |
| SveFe | 26.4488 | 65.1104 |
| SveFe | 26.71281986 | 64.84849865 |
| SveFe | 28.07357352 | 64.86318622 |
| SveFe | 27.4937 | 64.1214 |
| SveFe | 26.8124 | 63.7704 |
| SveFe | 26.92984656 | 63.59605784 |
| SveFe | 30.4047311 | 61.88368514 |
| SveFe | 29.23661989 | 60.93832475 |
| SveFe | 29.043 | 61.0546 |
| SveFe | 28.7819 | 61.1048 |
| SveFe | 28.0502 | 61.1713 |
| SveFe | 27.584 | 61.3759 |
| SveFe | 26.3114 | 61.4124 |
| SveFe | 26.0543 | 61.1242 |
| SveFe | 25.4648 | 60.1776 |
| SveFe | 26.12873284 | 60.13006834 |
| SveFe | 23.22697788 | 59.80343652 |
| SveFe | 20.72536075 | 59.66216254 |
| SveFe | 19.90164719 | 59.97068906 |
| SveFe | 19.32527154 | 60.10753591 |
| SveFe | 18.12233313 | 60.81168811 |
| SveFe | 18.13861712 | 61.23658796 |
| SveFe | 17.9641 | 61.7514 |
| SveFe | 18.4615 | 62.5789 |
| SveFe | 18.9410073 | 62.89078306 |
| SveFe | 19.9043 | 63.4937 |
| SveFe | 20.2901 | 64.0466 |
| SveFe | 20.5613 | 63.7228 |
| SveFe | 20.8842 | 63.4627 |
| SveFe | 22.24739208 | 63.98451363 |
| SveFe | 22.8531 | 64.4254 |
| SveFe | 23.5522 | 64.7238 |
| SveFe | 25.5921 | 65.4 |
| SveFe | 25.9722 | 65.2351 |
| SveFe | 26.4488 | 65.1104 |