



OPERANDUM

OPEn-air laboRAtories for Nature baseD
solUtions to Manage hydro-meteo risks

Coastal Erosion and Storm Surge Modelling

WP5: MULTIPLE IMPACT MODELLING FOR ASSESSMENT AND REPLICATION

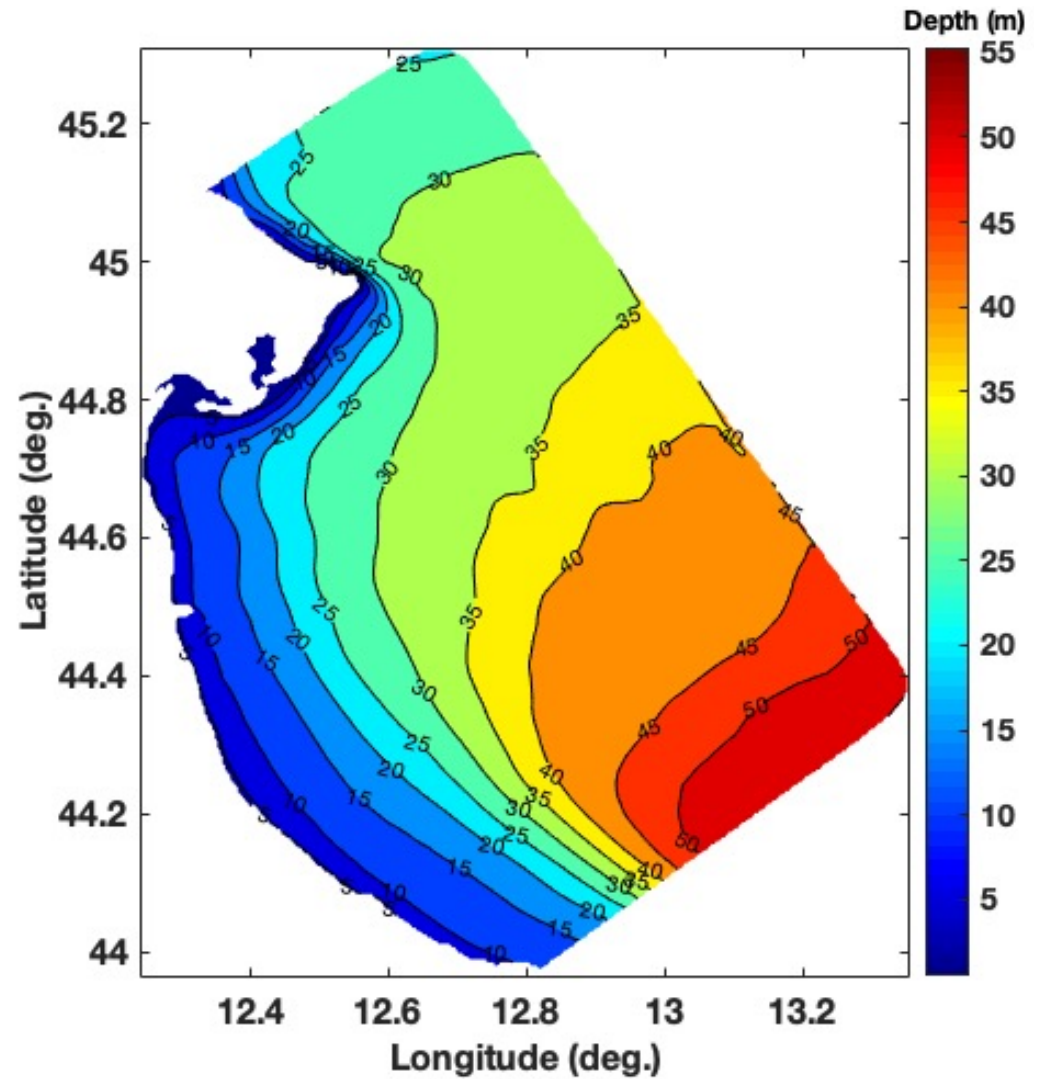
Task 5.2: Multiple Impact Modelling

Task 5.2.2: Coastal Erosion and Storm Surge Modelling



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776848.
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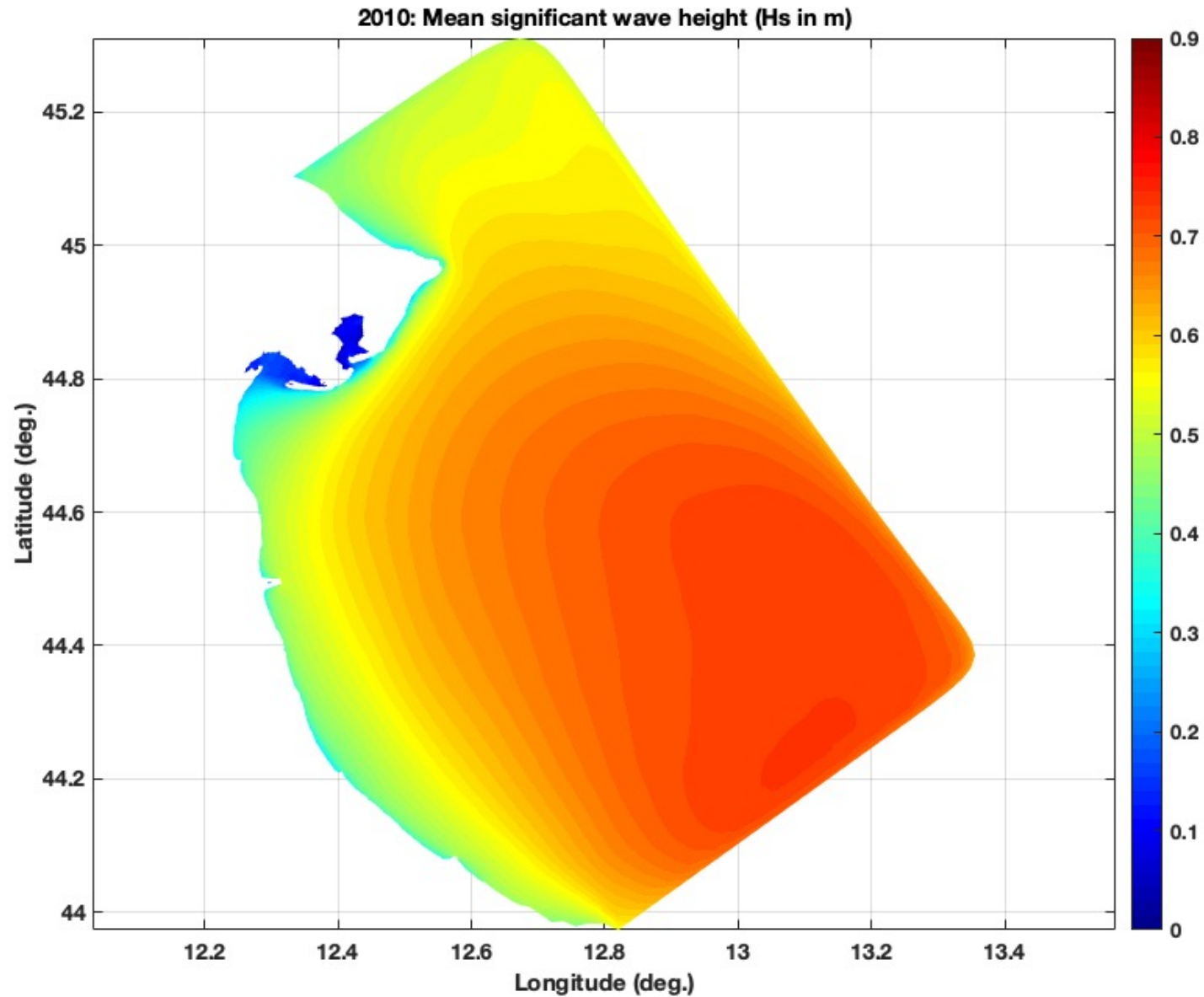
Emilia Romagna coastal belt:
Bathymetry for the model domain



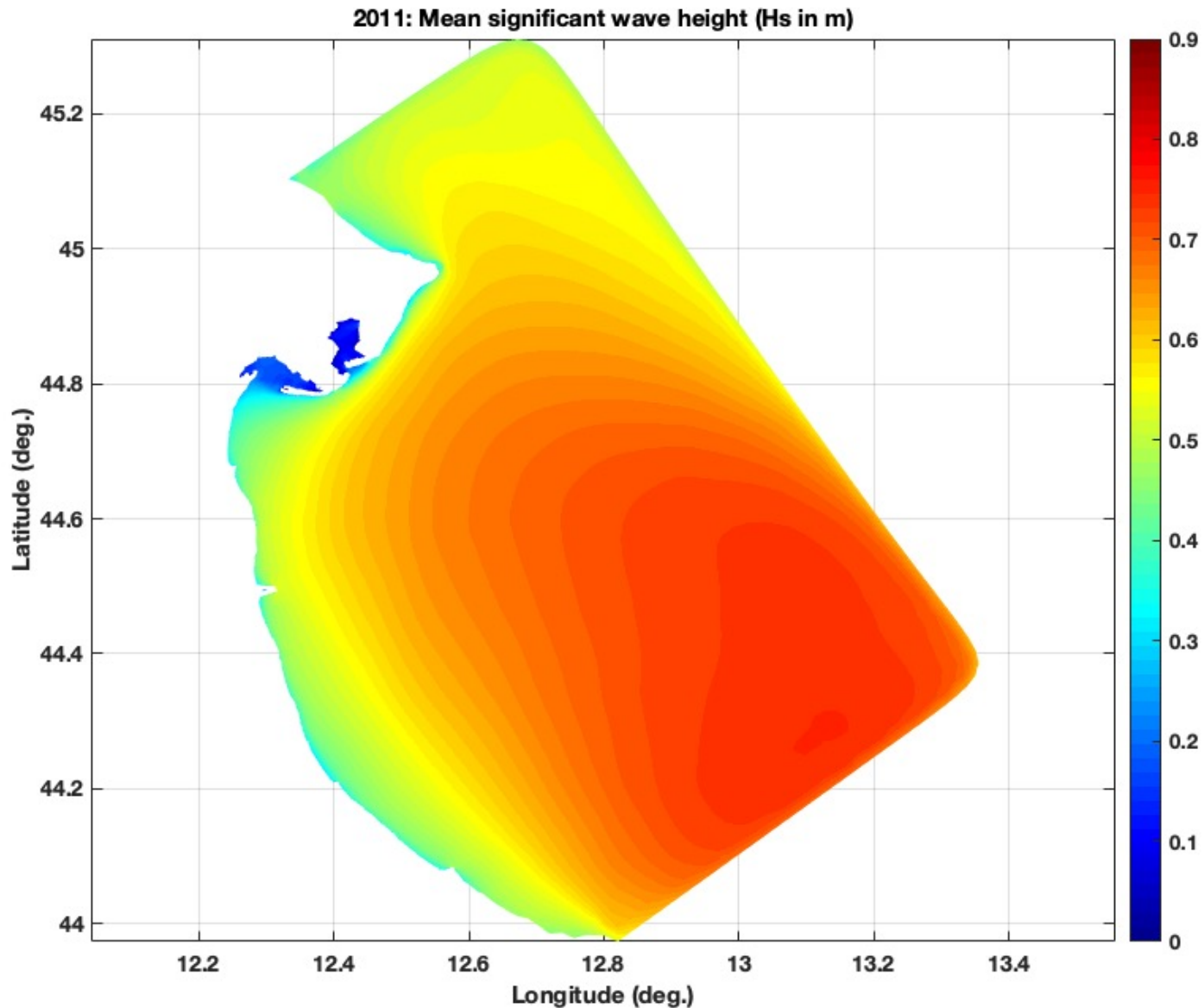
Present Climate: 2010-2019

Spatial maps using MedCORDEX forcings

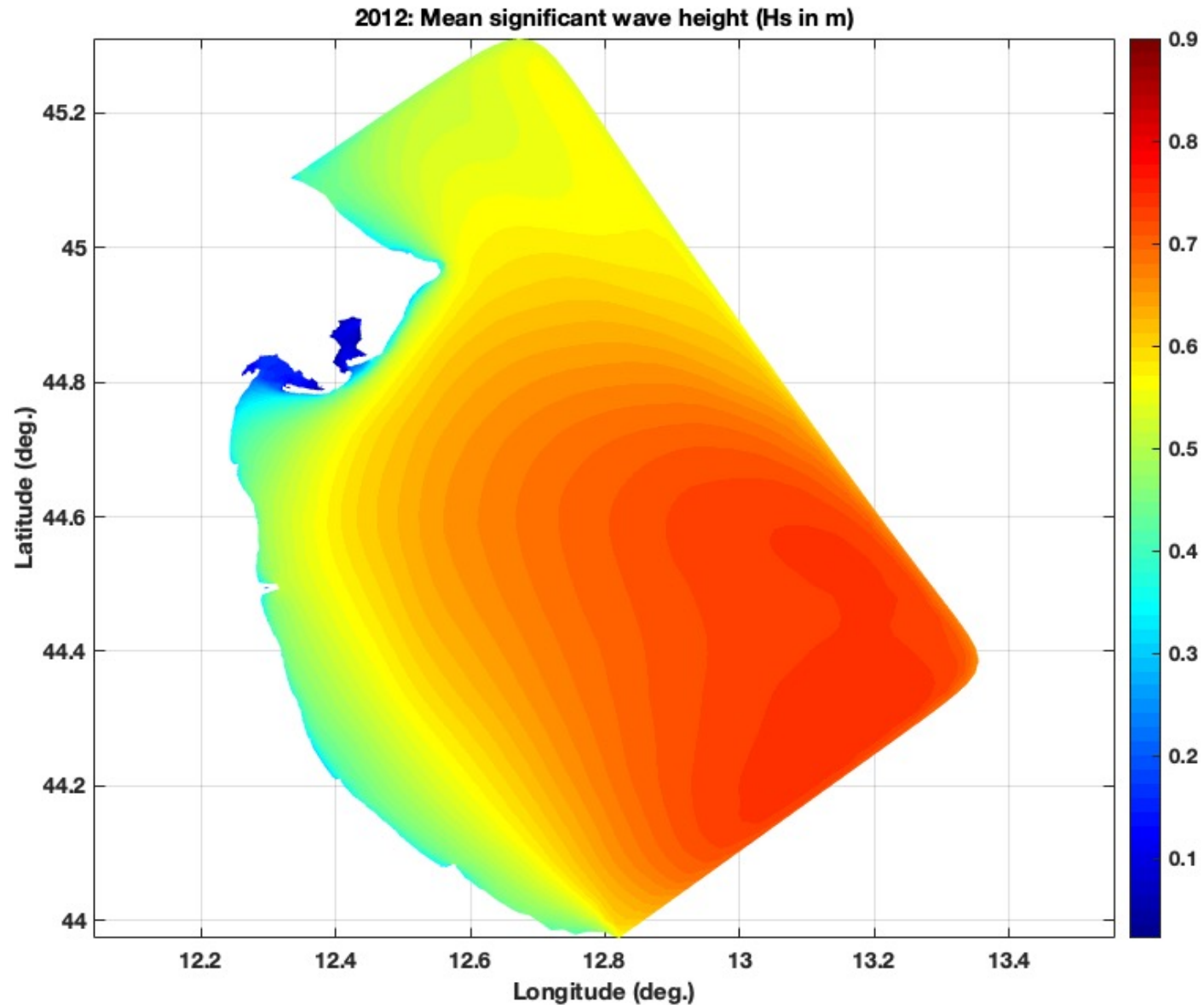
Spatial Maps: 2010: Mean significant wave height (H_s in m) using MedCordex forcings



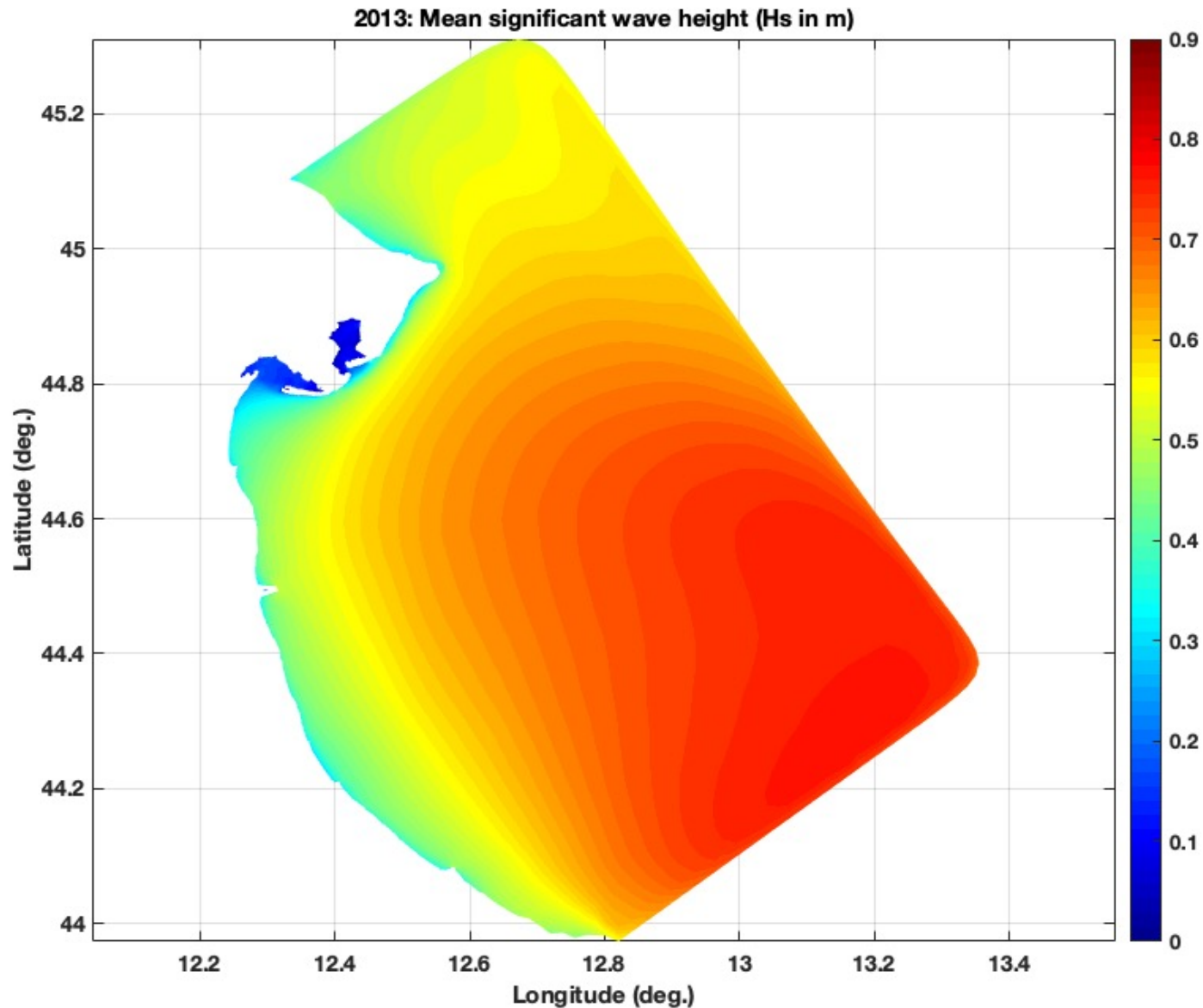
Spatial Maps: 2011: Mean significant wave height (H_s in m) using MedCordex forcings



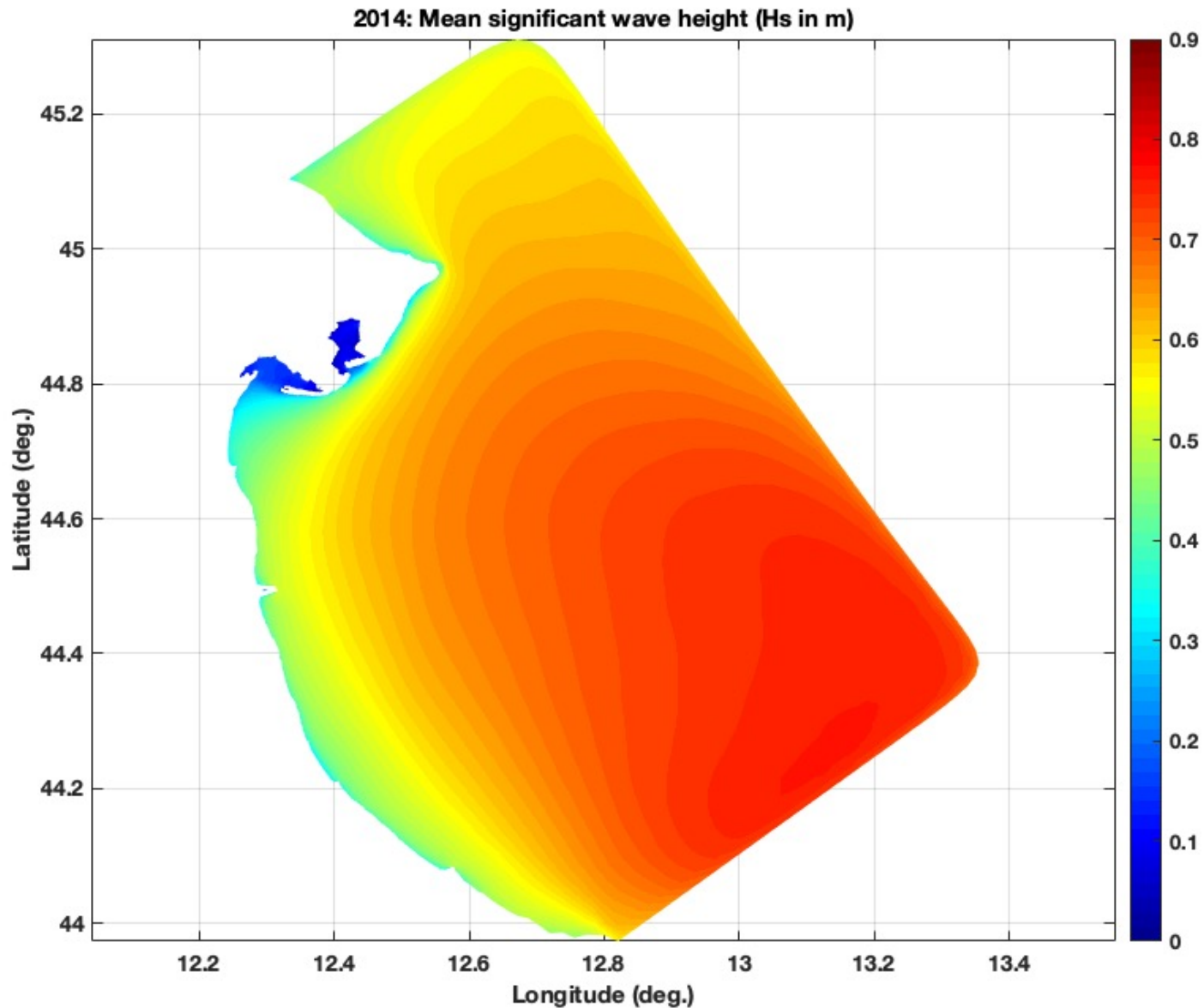
Spatial Maps: 2012: Mean significant wave height (H_s in m) using MedCordex forcings



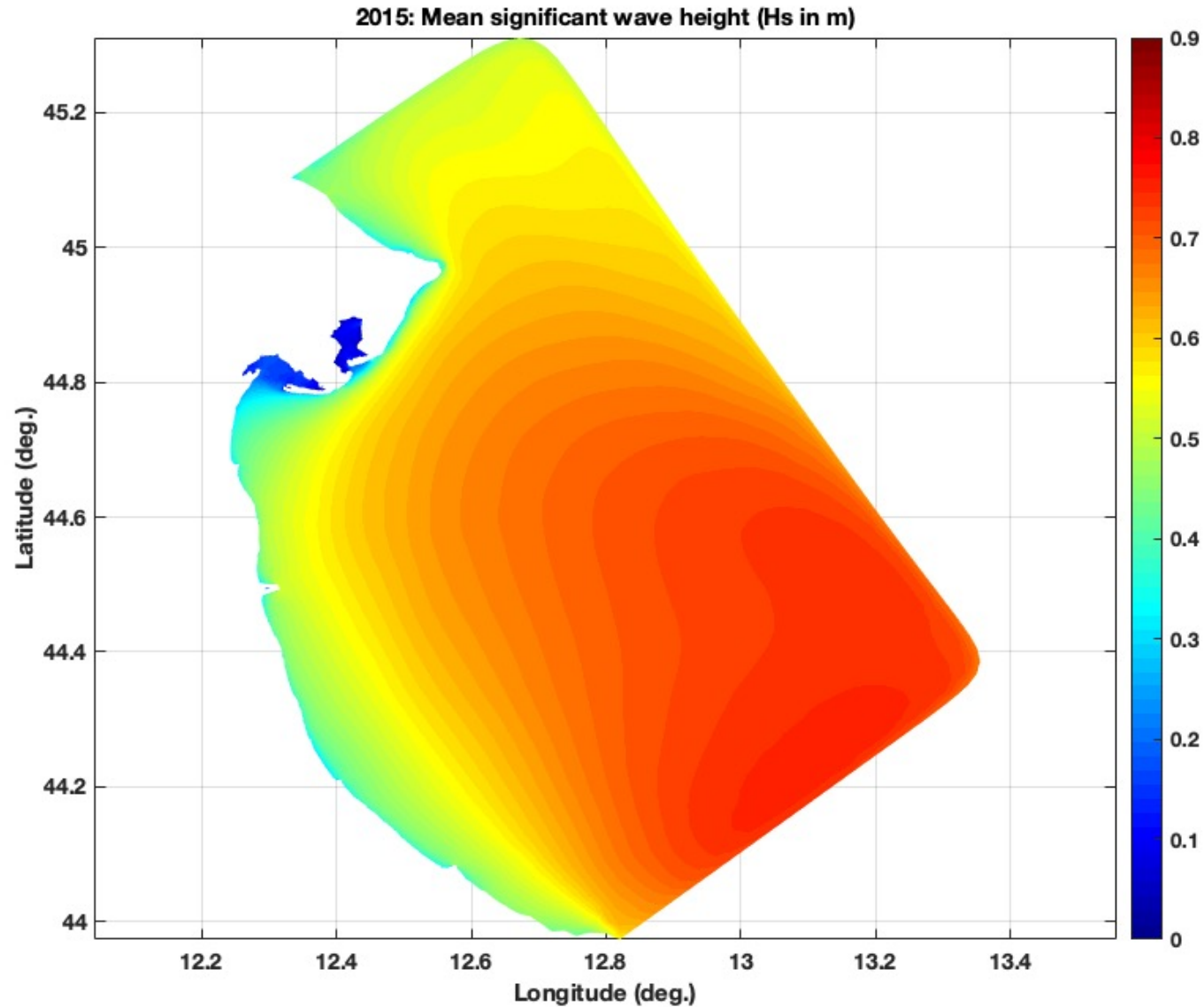
Spatial Maps: 2013: Mean significant wave height (H_s in m) using MedCordex forcings



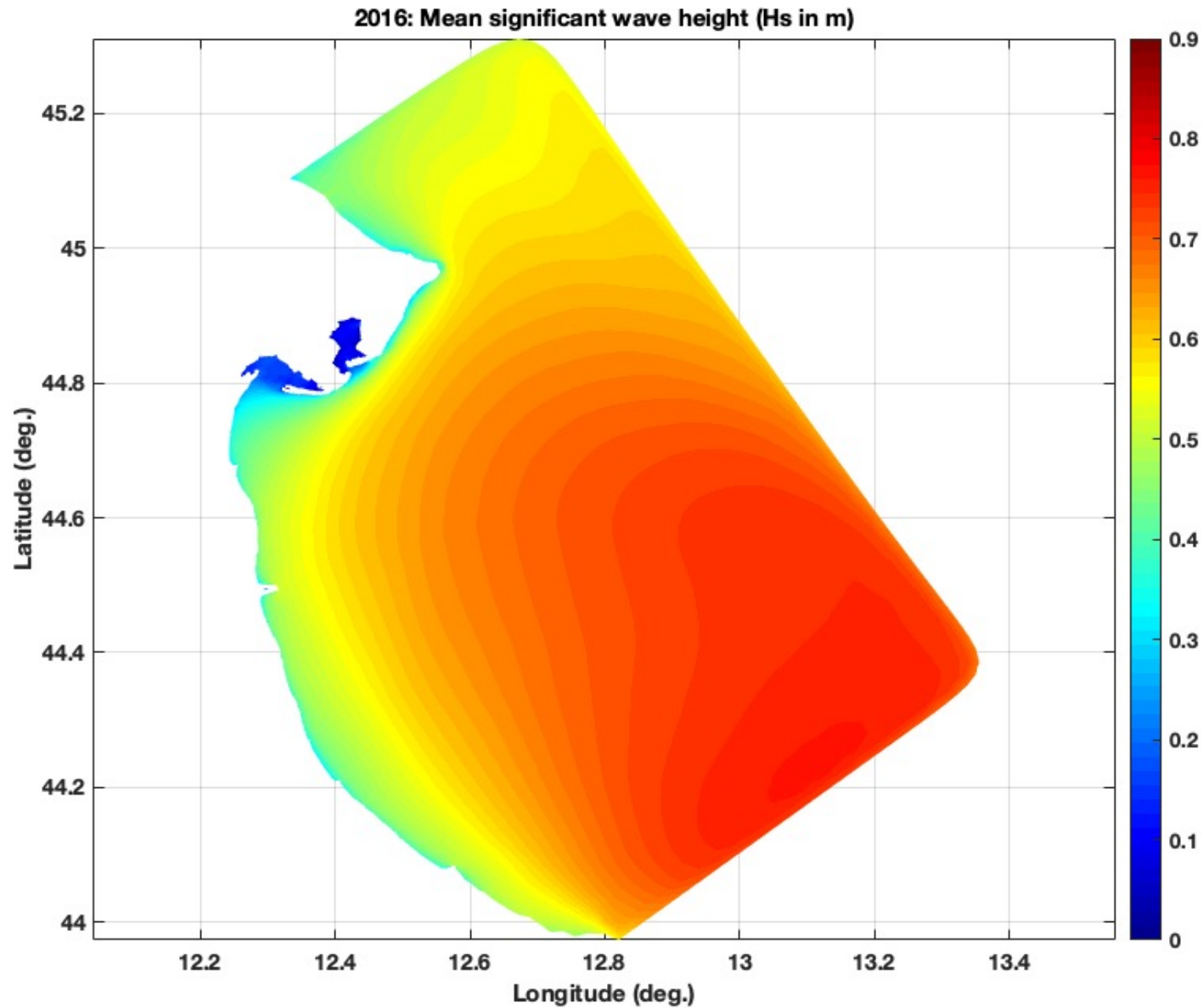
Spatial Maps: 2014: Mean significant wave height (H_s in m) using MedCordex forcings



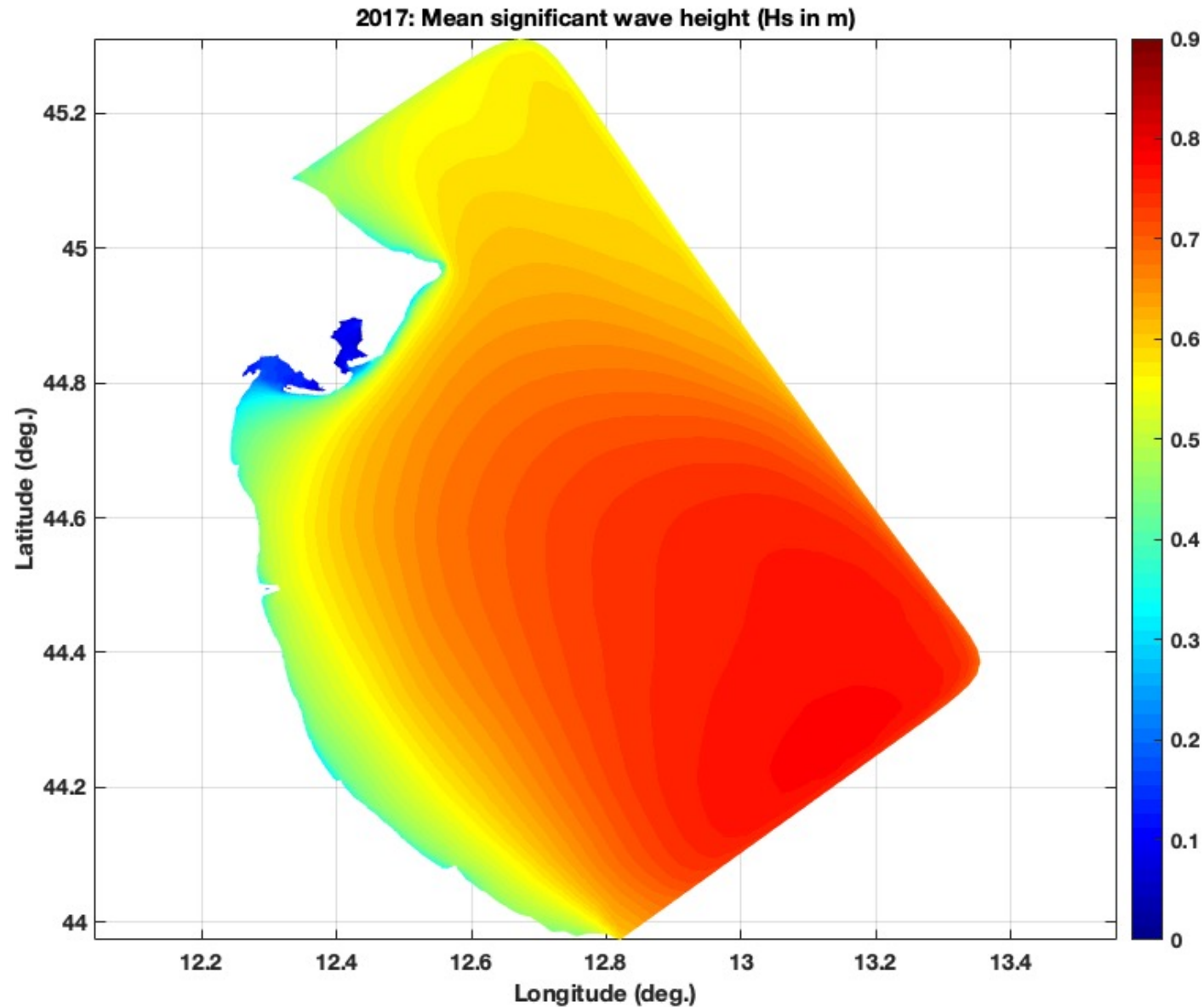
Spatial Maps: 2015: Mean significant wave height (H_s in m) using MedCordex forcings



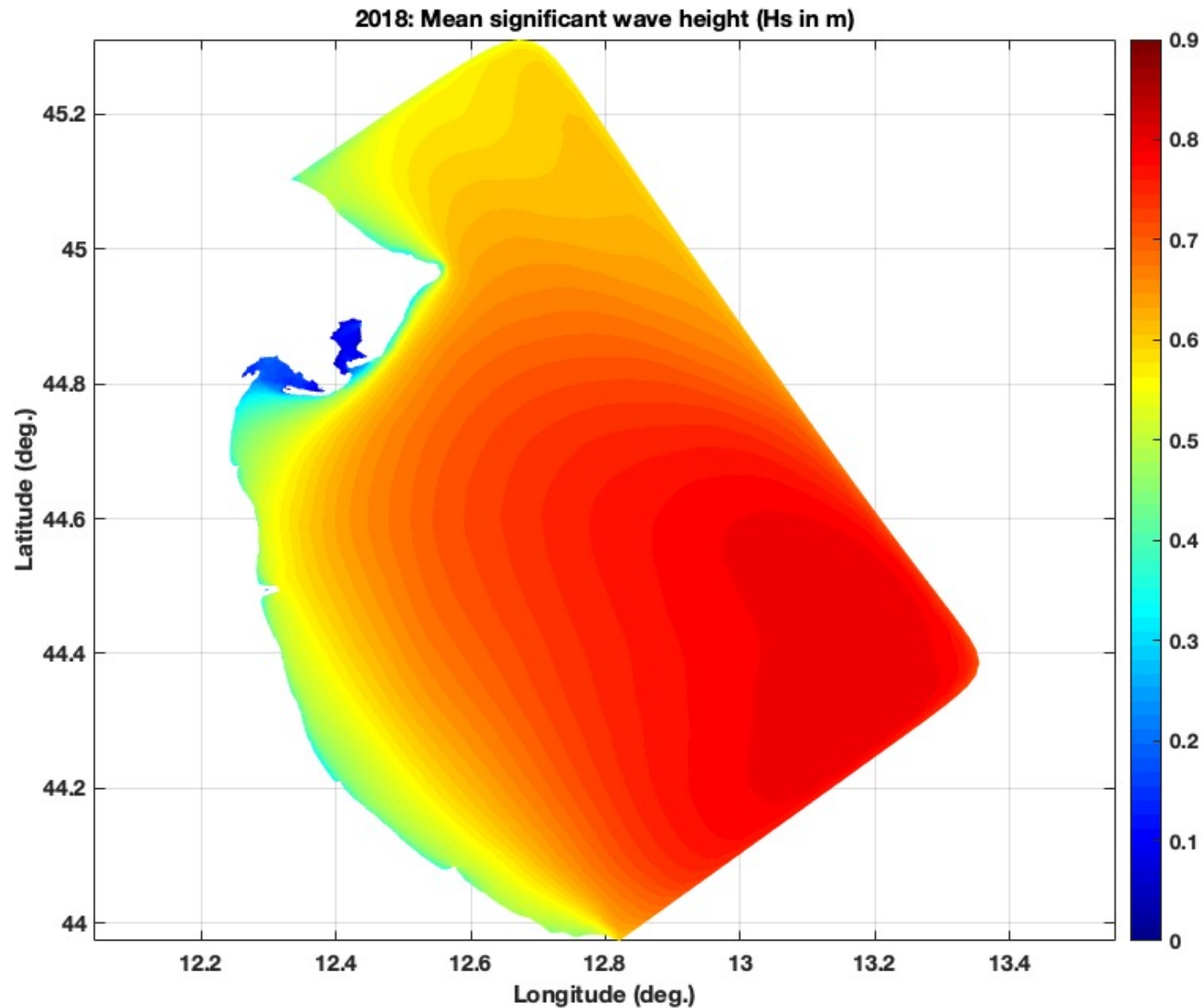
Spatial Maps: 2016: Mean significant wave height (H_s in m) using MedCordex forcings



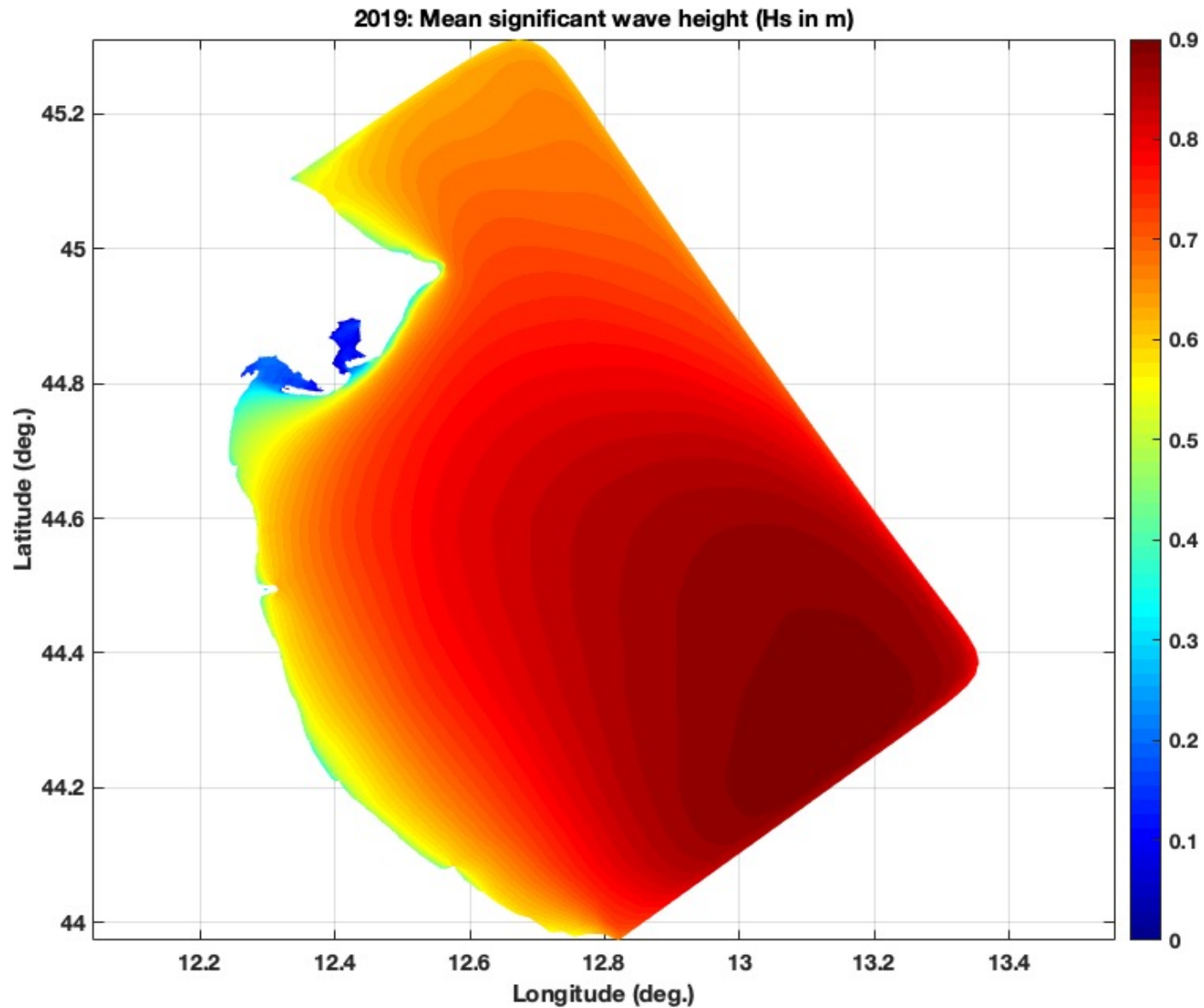
Spatial Maps: 2017: Mean significant wave height (H_s in m) using MedCordex forcings



Spatial Maps: 2018: Mean significant wave height (H_s in m) using MedCordex forcings



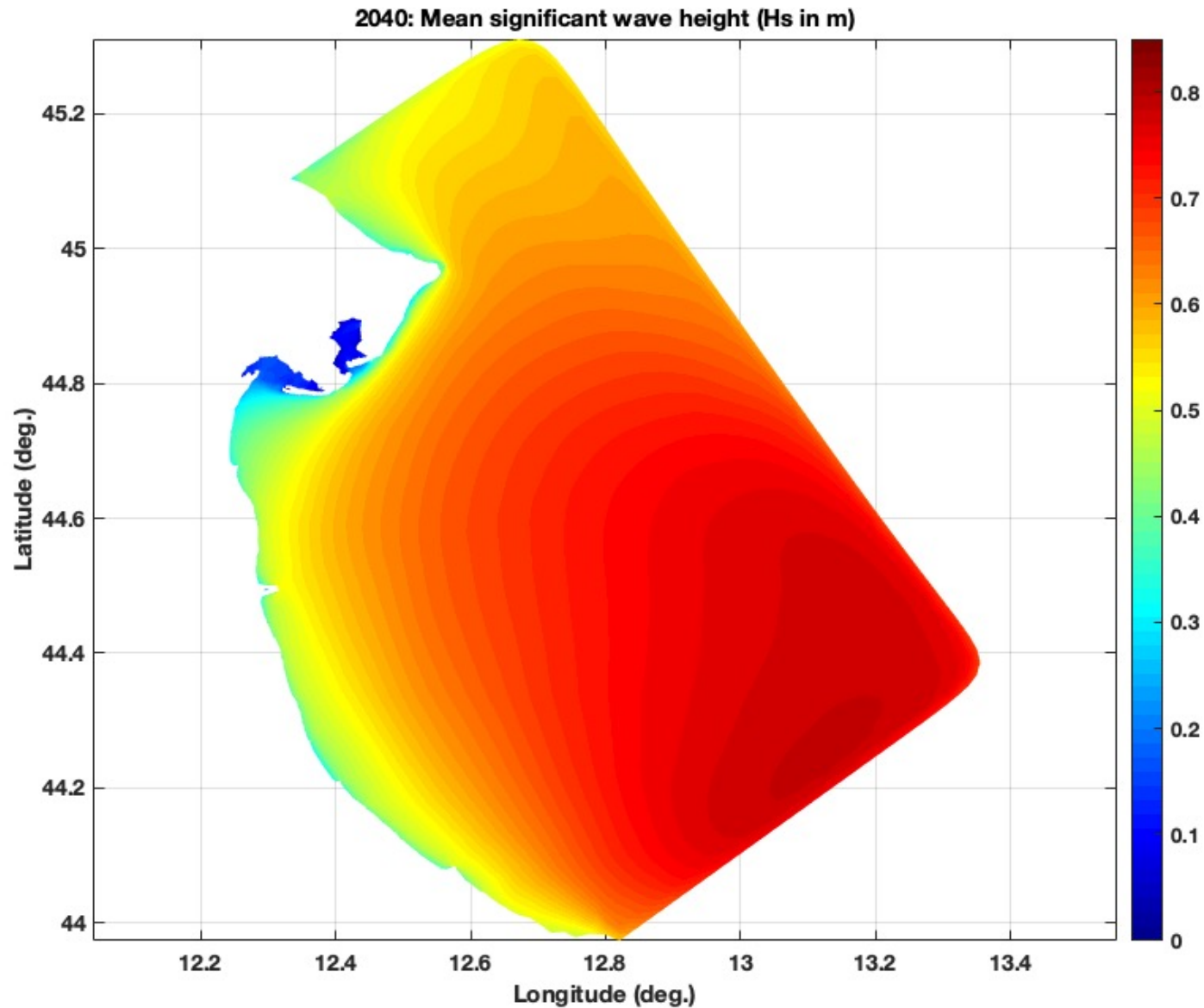
Spatial Maps: 2019: Mean significant wave height (H_s in m) using MedCordex forcings



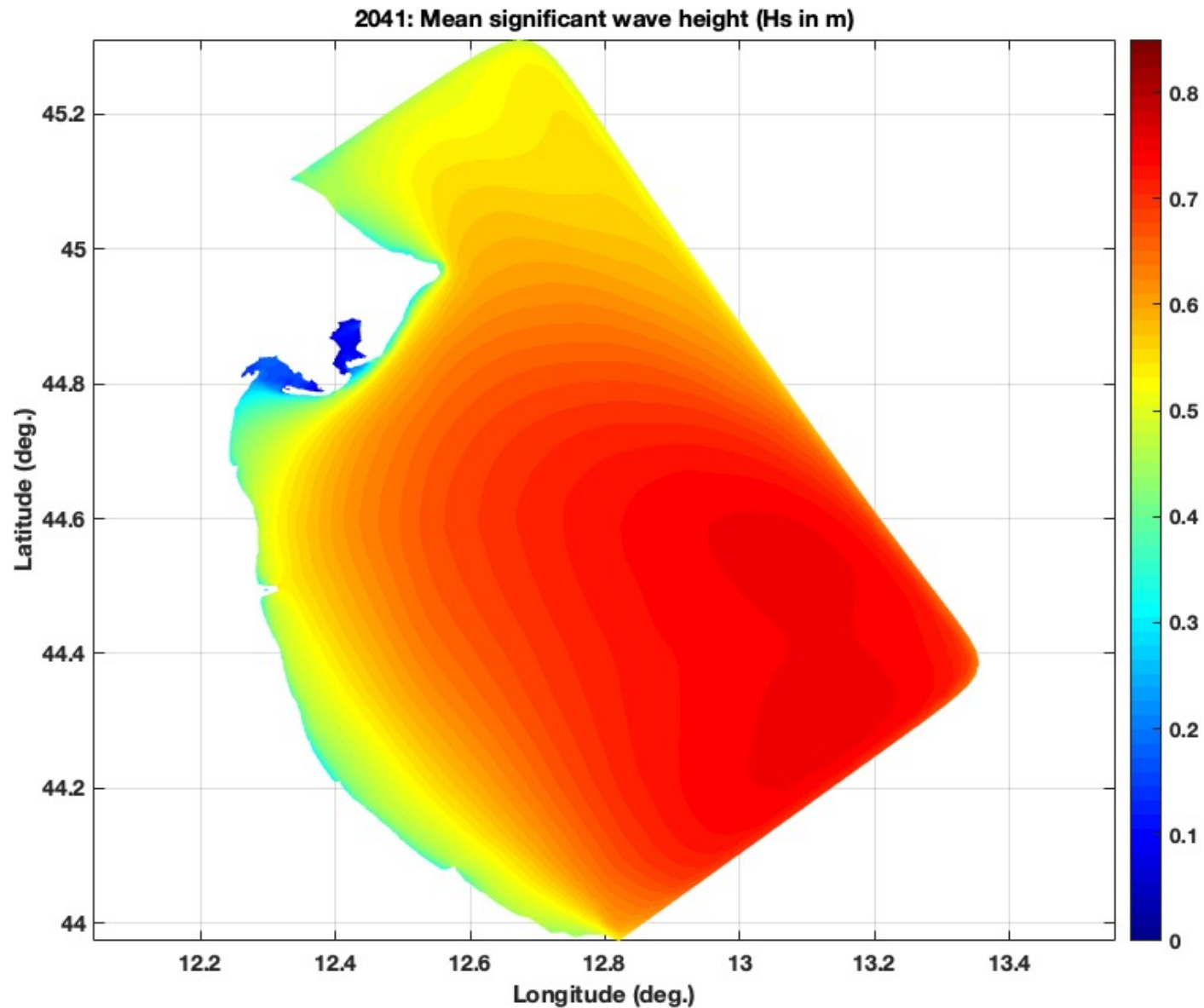
Future Climate: 2040-2049

Spatial maps using MedCORDEX forcings

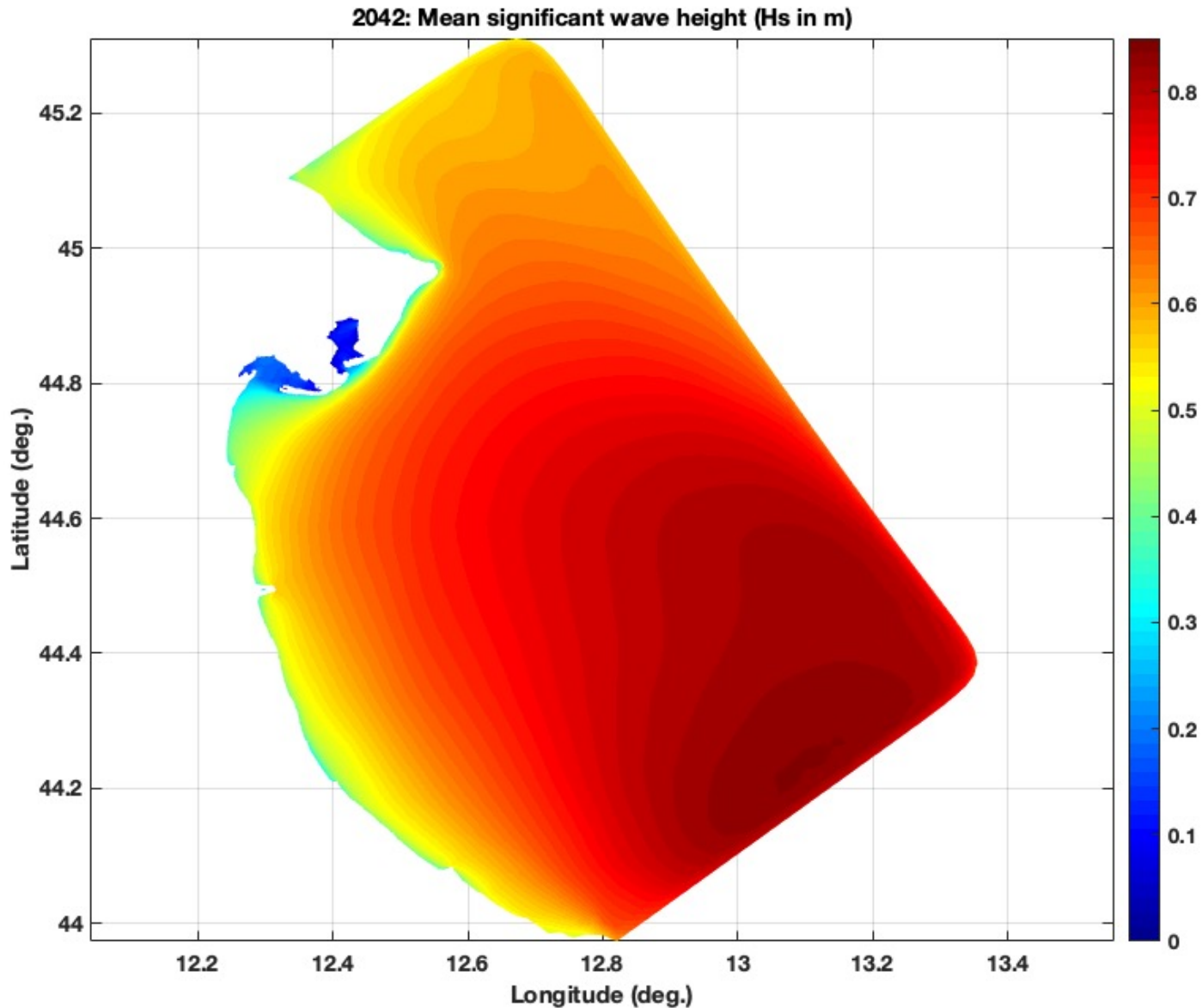
Spatial Maps: 2040: Mean significant wave height (H_s in m) using MedCordex forcings



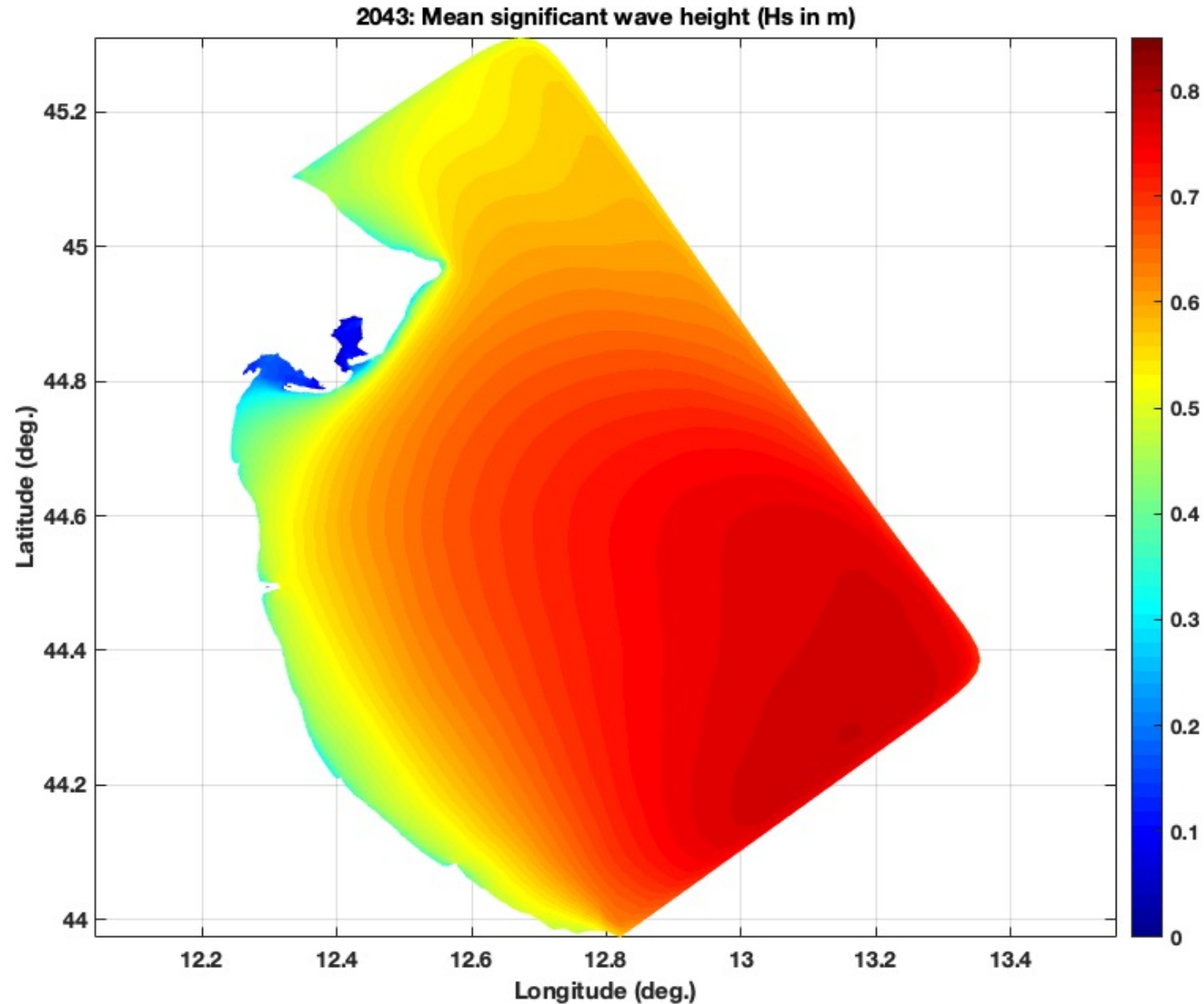
Spatial Maps: 2041: Mean significant wave height (H_s in m) using MedCordex forcings



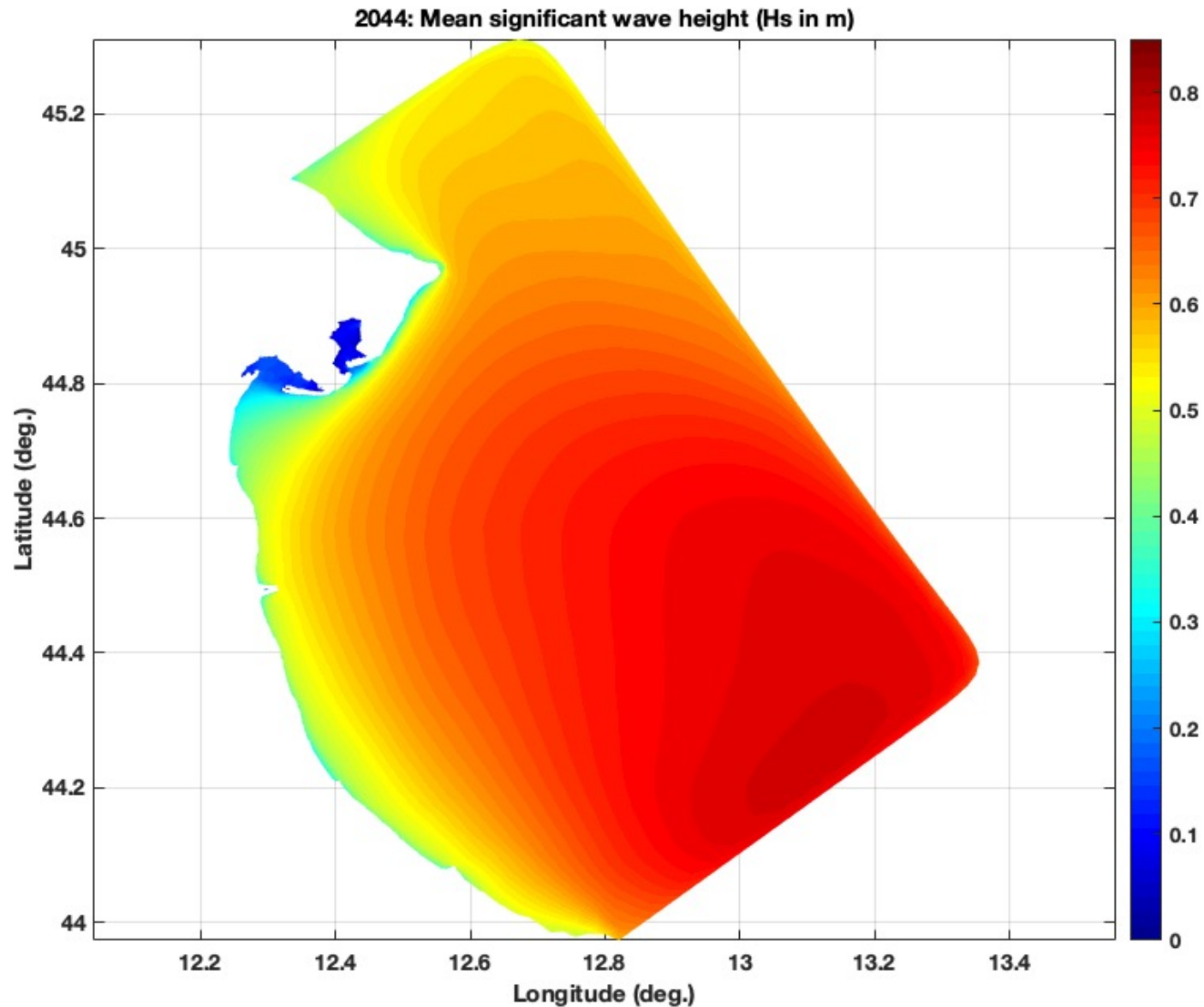
Spatial Maps: 2042: Mean significant wave height (H_s in m) using MedCordex forcings



Spatial Maps: 2043: Mean significant wave height (H_s in m) using MedCordex forcings



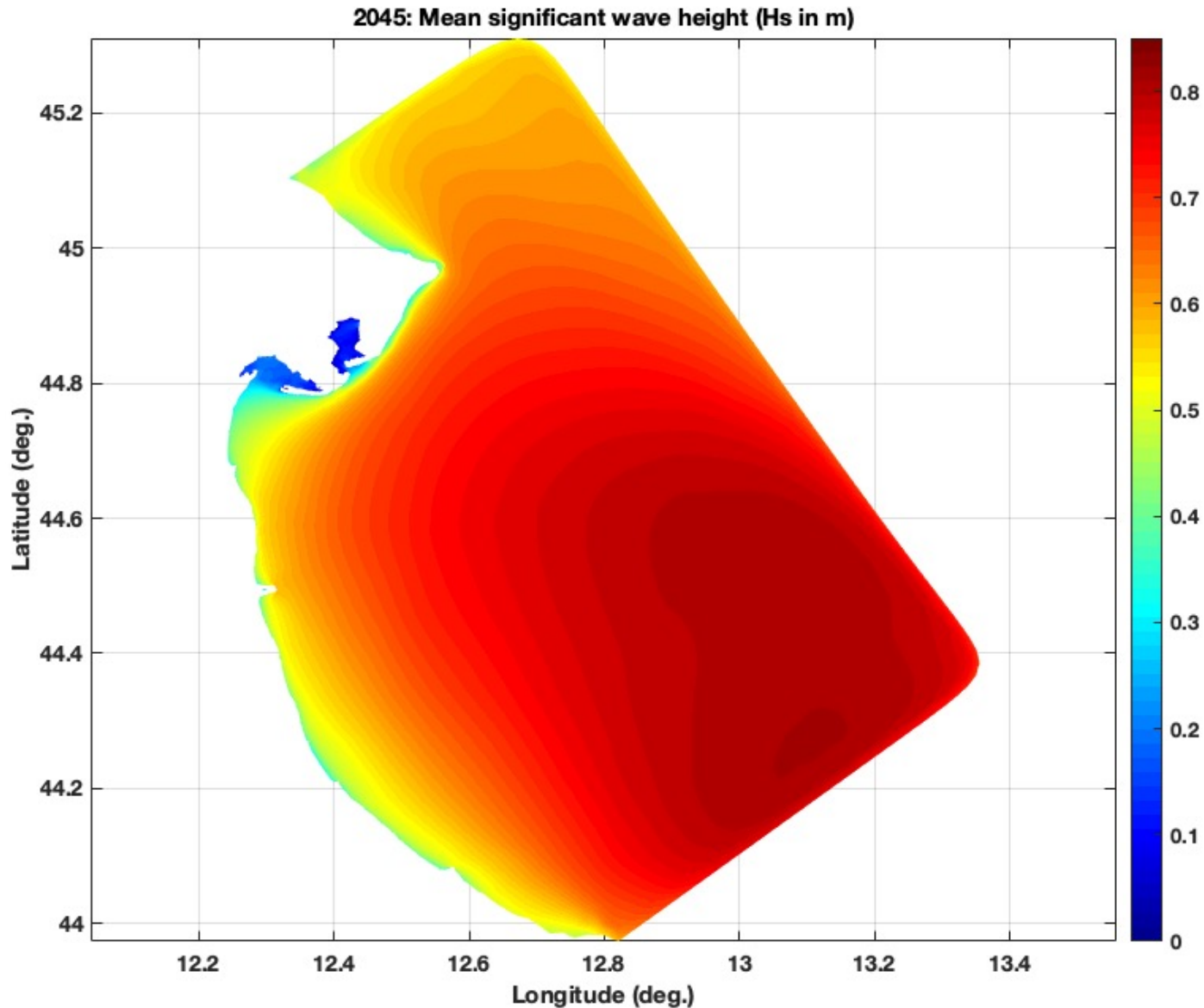
Spatial Maps: 2044: Mean significant wave height (H_s in m) using MedCordex forcings





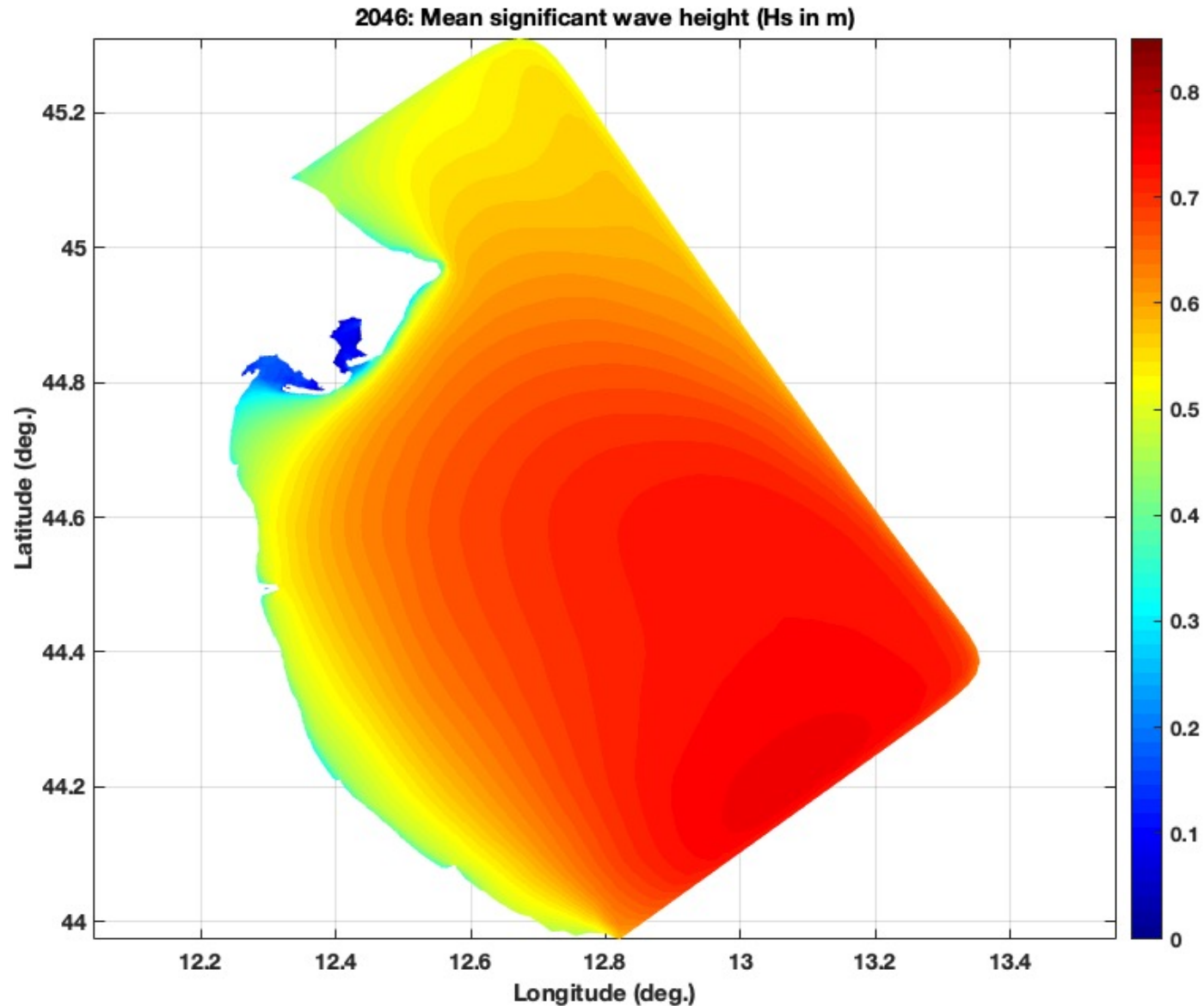
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Spatial Maps: 2045: Mean significant wave height (H_s in m) using MedCordex forcings

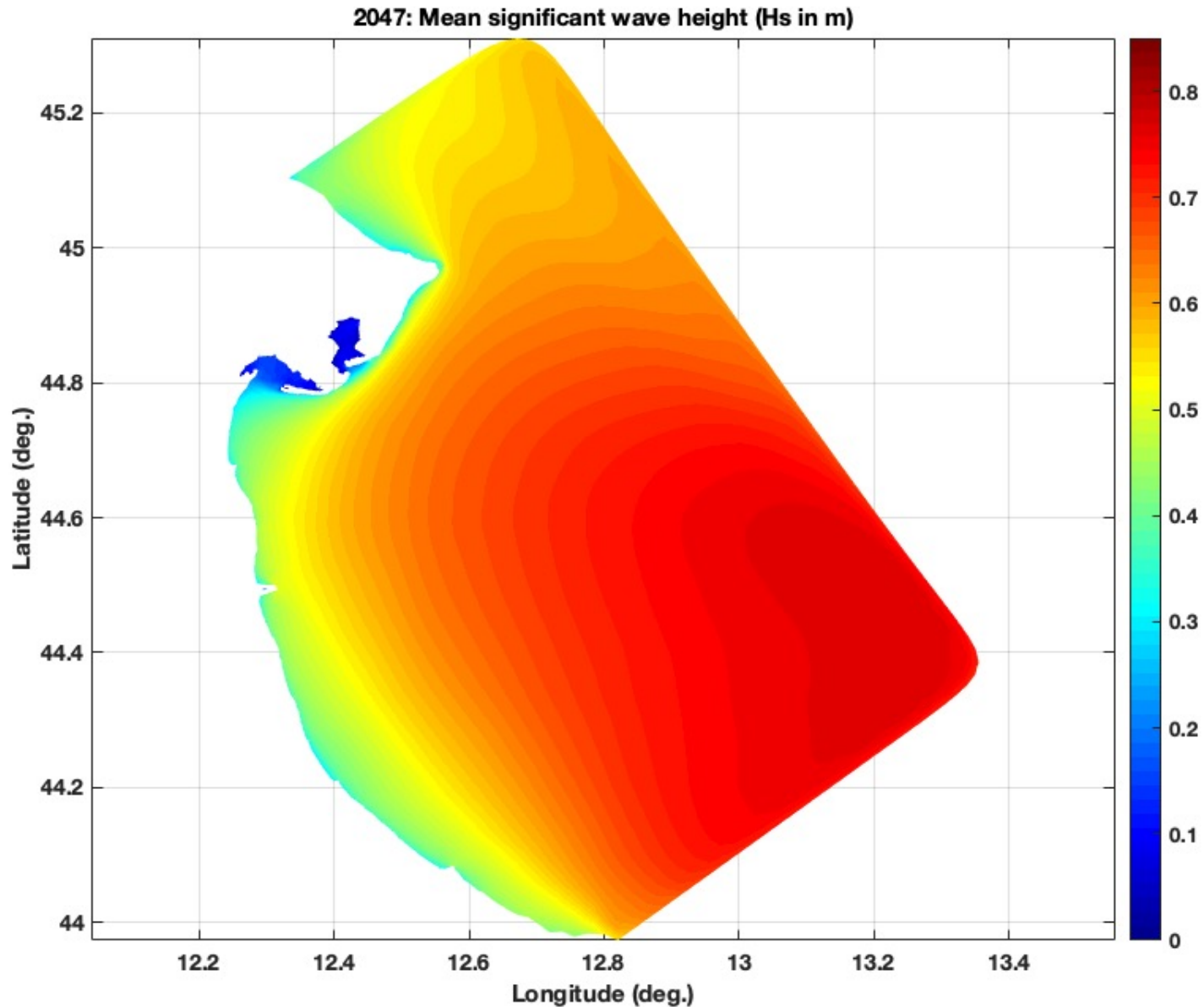


EU funded project
GA no. 776848

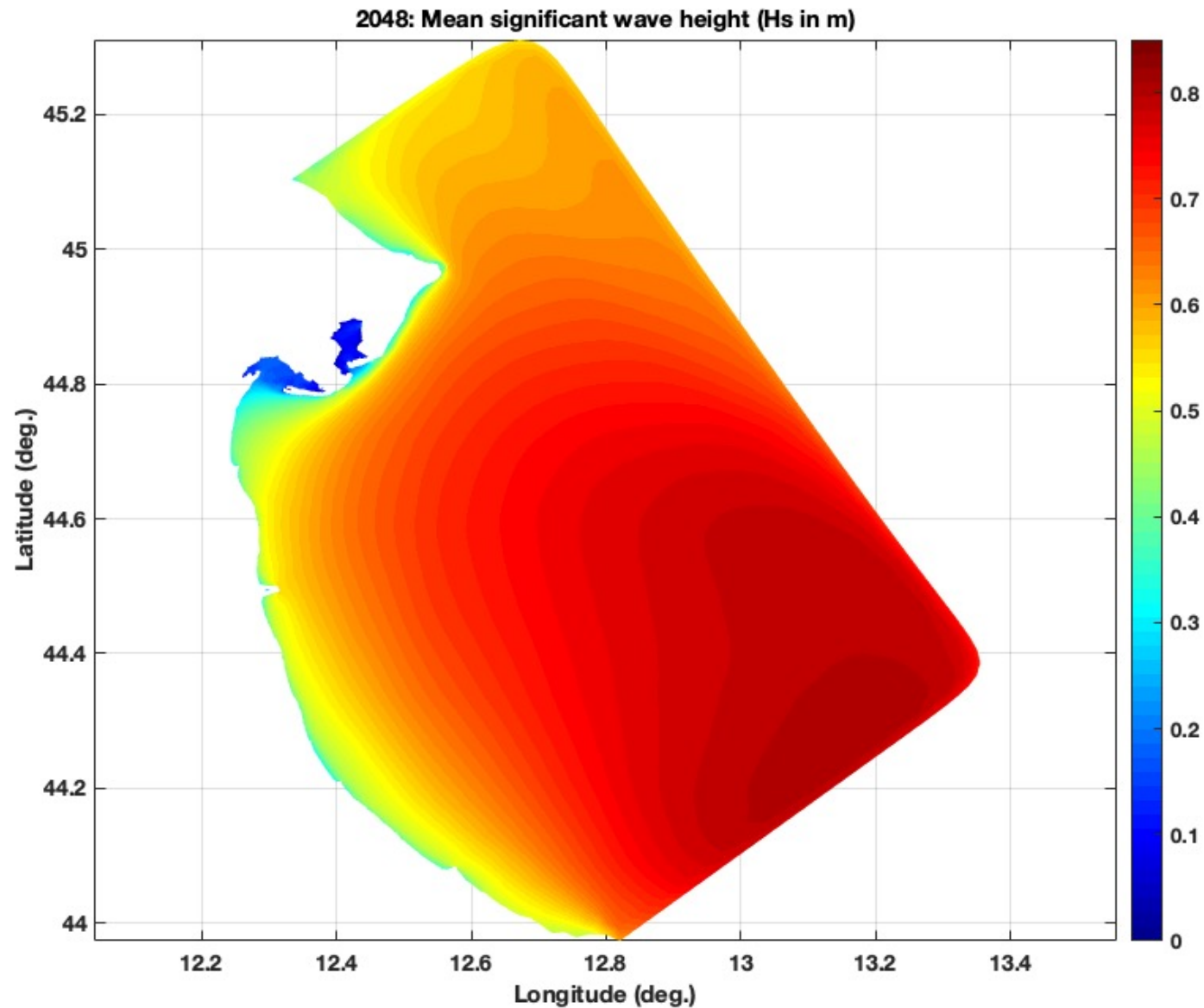
Spatial Maps: 2046: Mean significant wave height (H_s in m) using MedCordex forcings



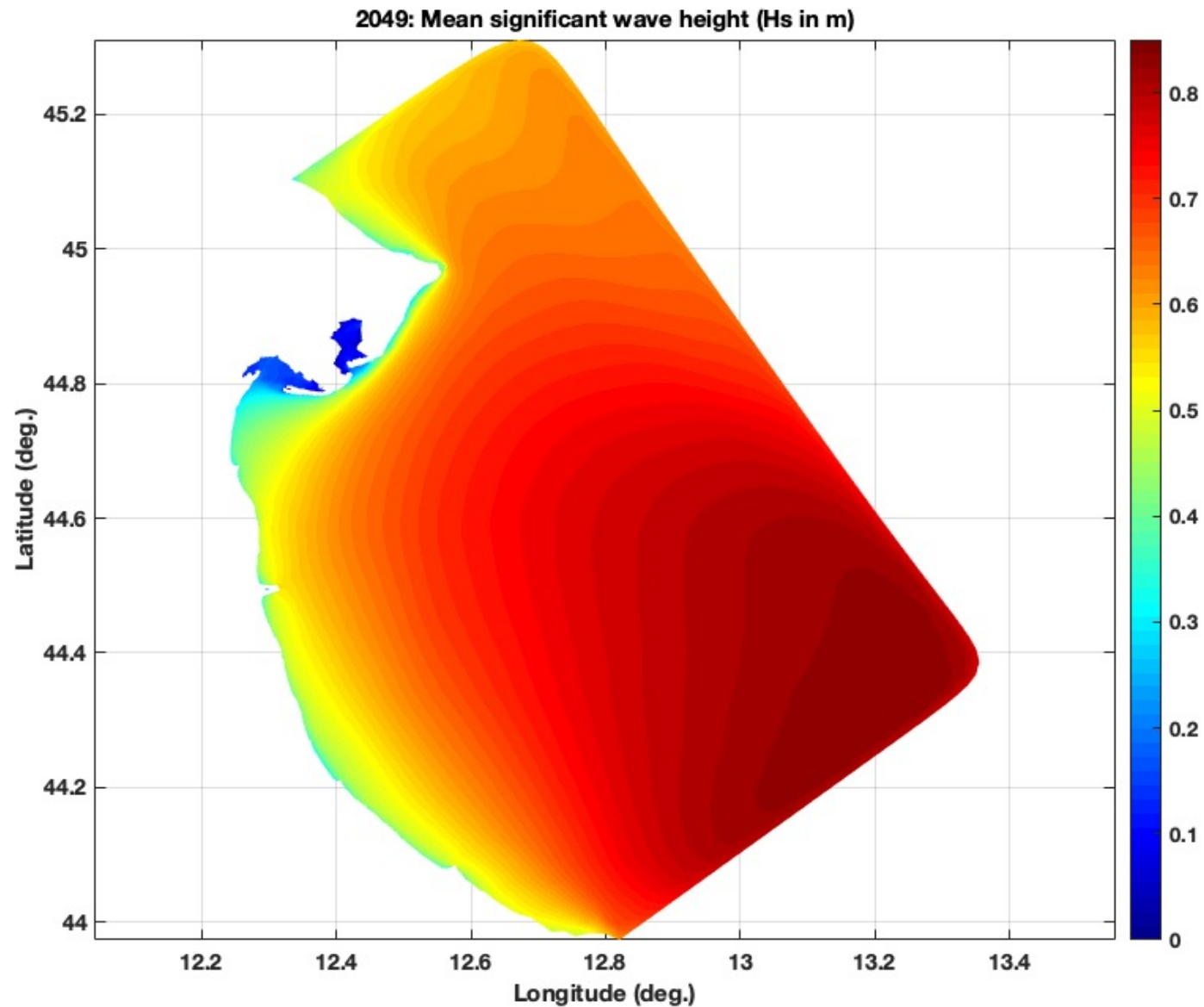
Spatial Maps: 2047: Mean significant wave height (H_s in m) using MedCordex forcings



Spatial Maps: 2048: Mean significant wave height (H_s in m) using MedCordex forcings



Spatial Maps: 2049: Mean significant wave height (H_s in m) using MedCordex forcings

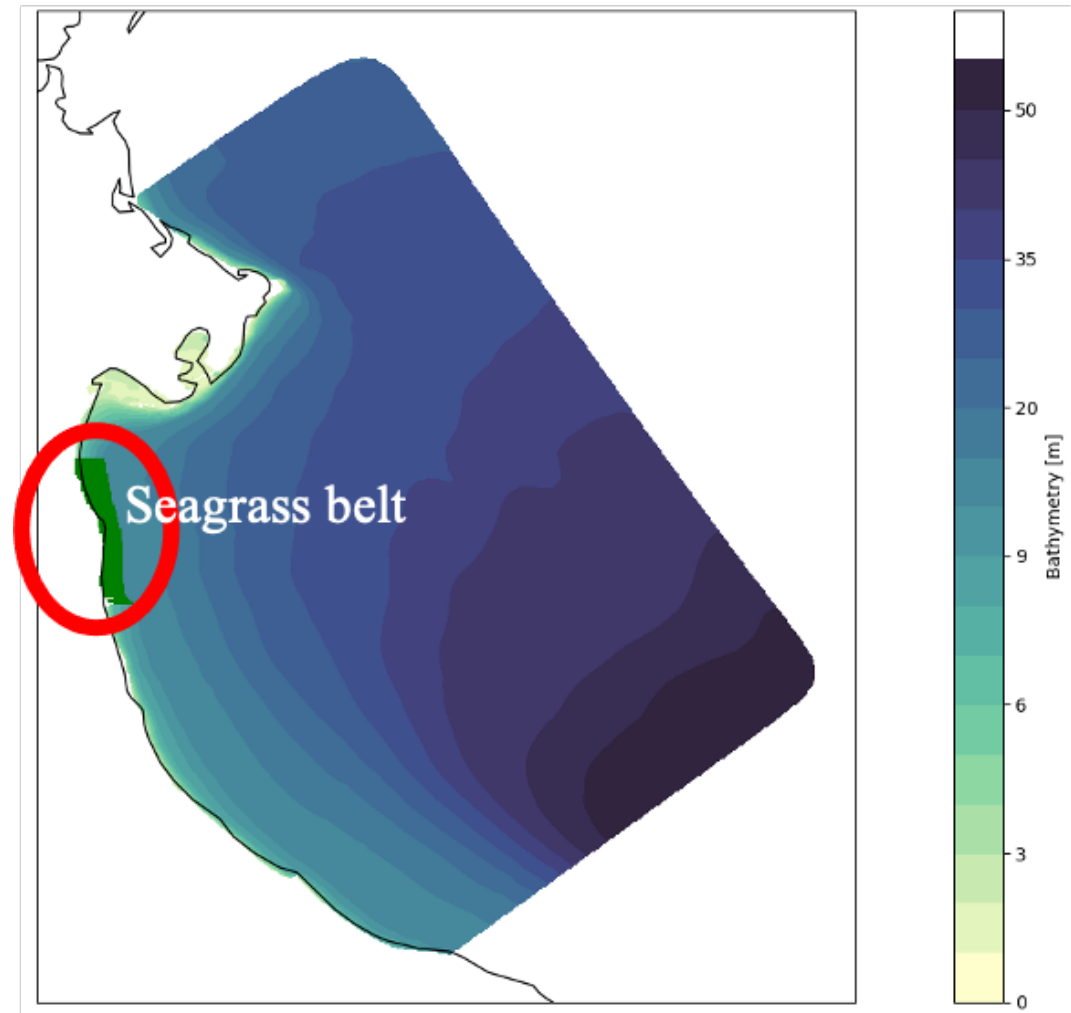


Present Climate: 2010-2019

Wave Attenuation Maps

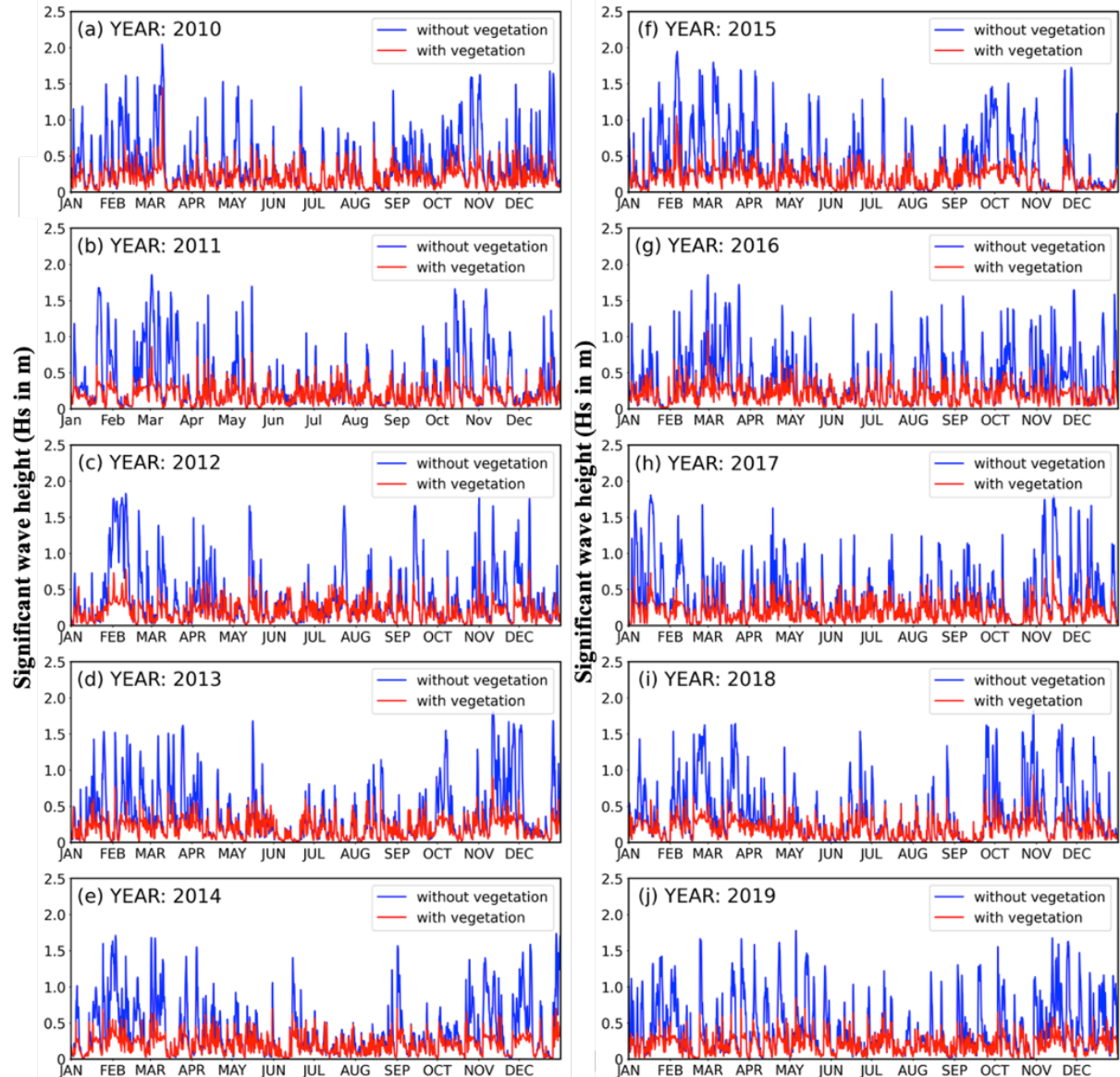
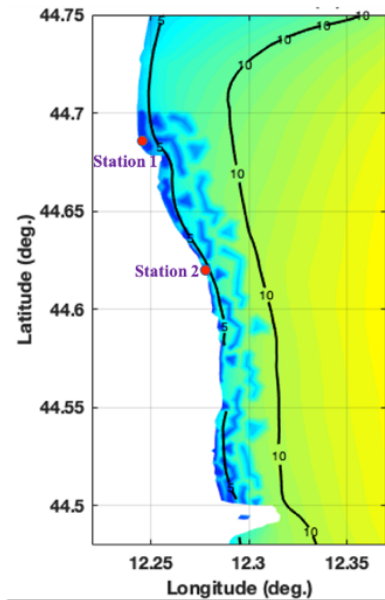


Bathymetry and seagrass belt position in the Bellocchio beach.





*Time-series comparison (2010-19)
of H_s , with & without vegetation at
Station 2 (as indicated in location
map).*

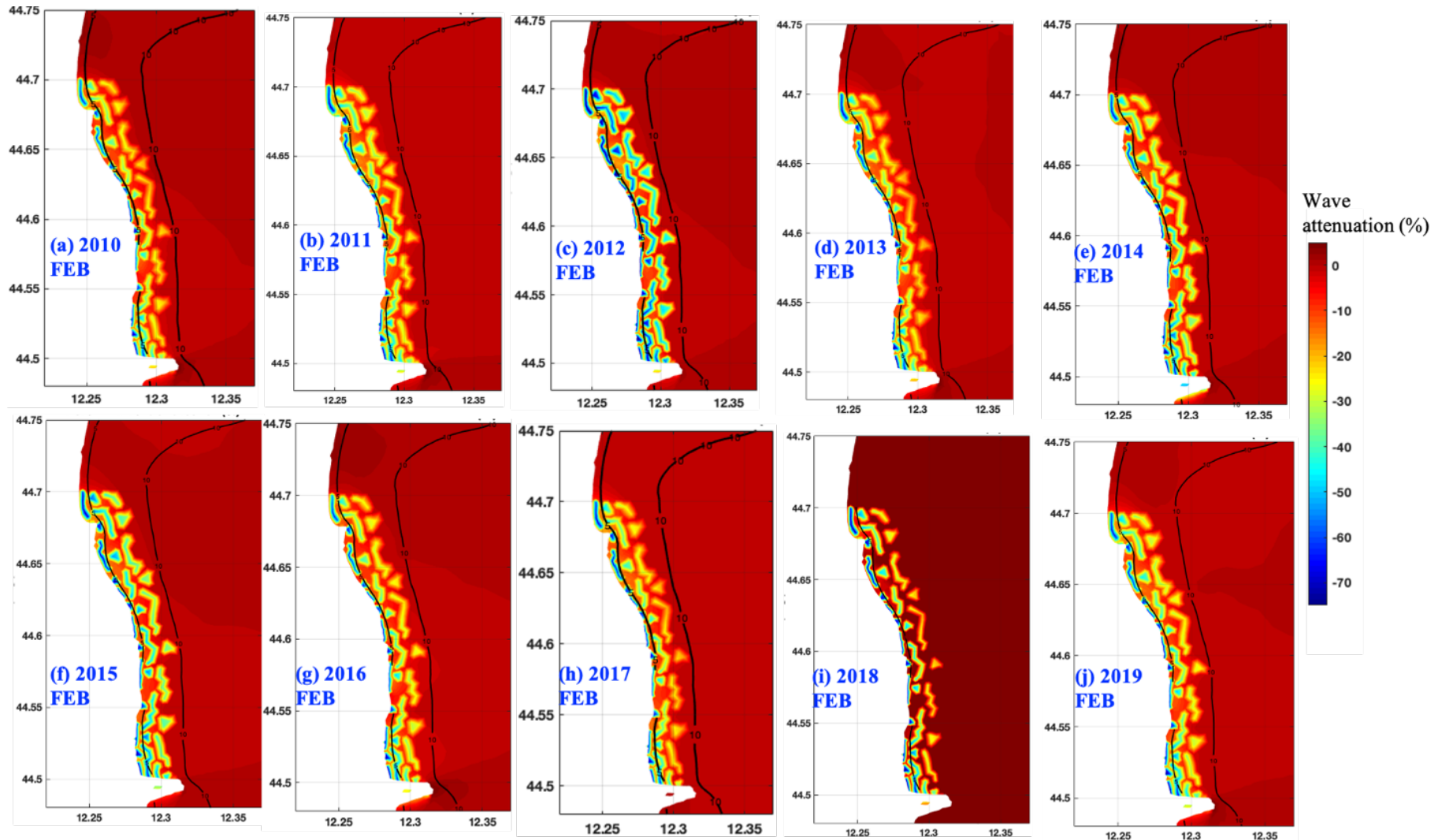




WAVE ATTENUATION MAPS



Mean monthly percentage variation of wave height with Zostera Marina during 2010-19 for the month of February (winter)

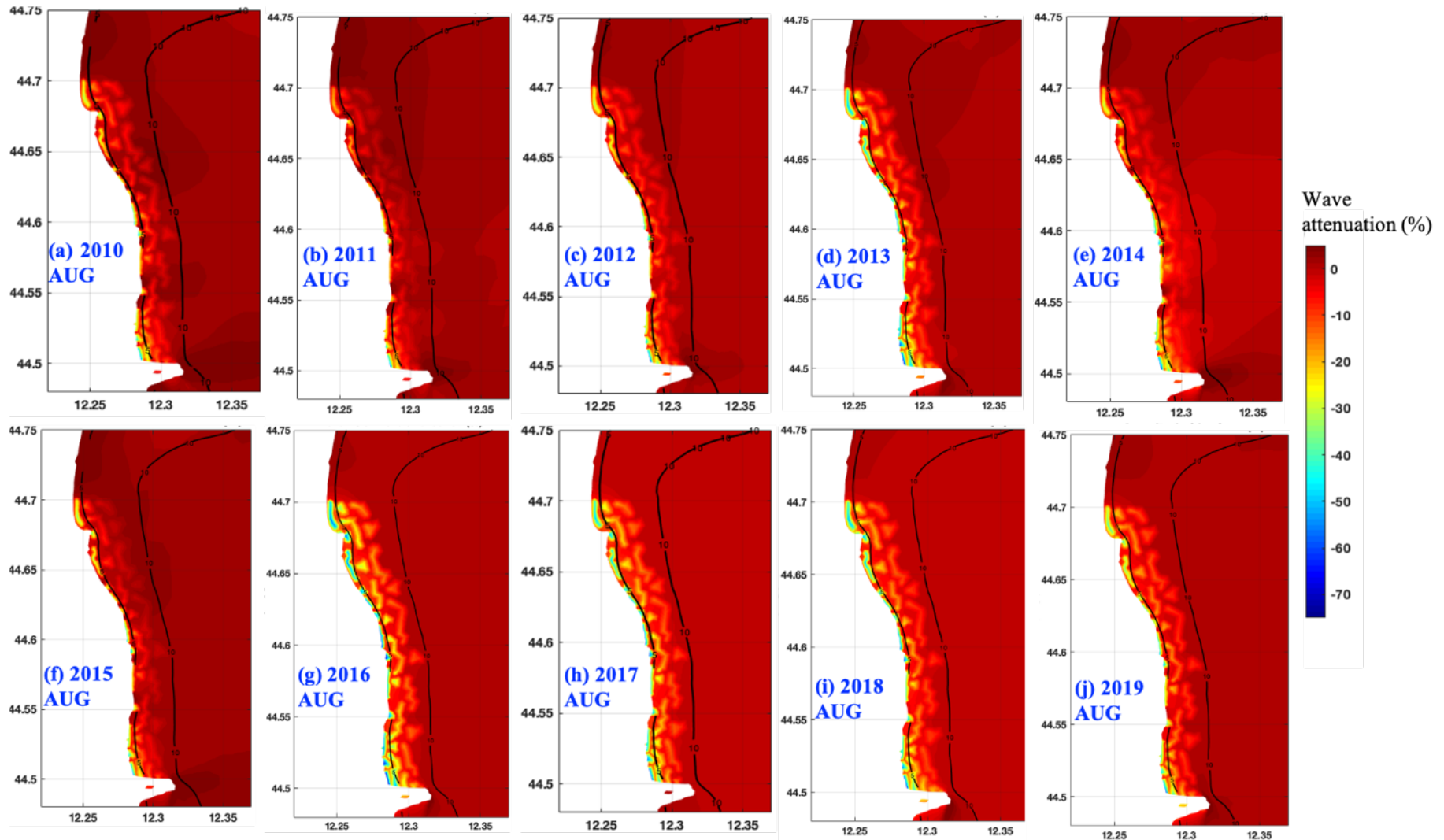




WAVE ATTENUATION MAPS



Mean monthly percentage variation of wave height with Zostera Marina during 2010-19 for the month of August (Summer)

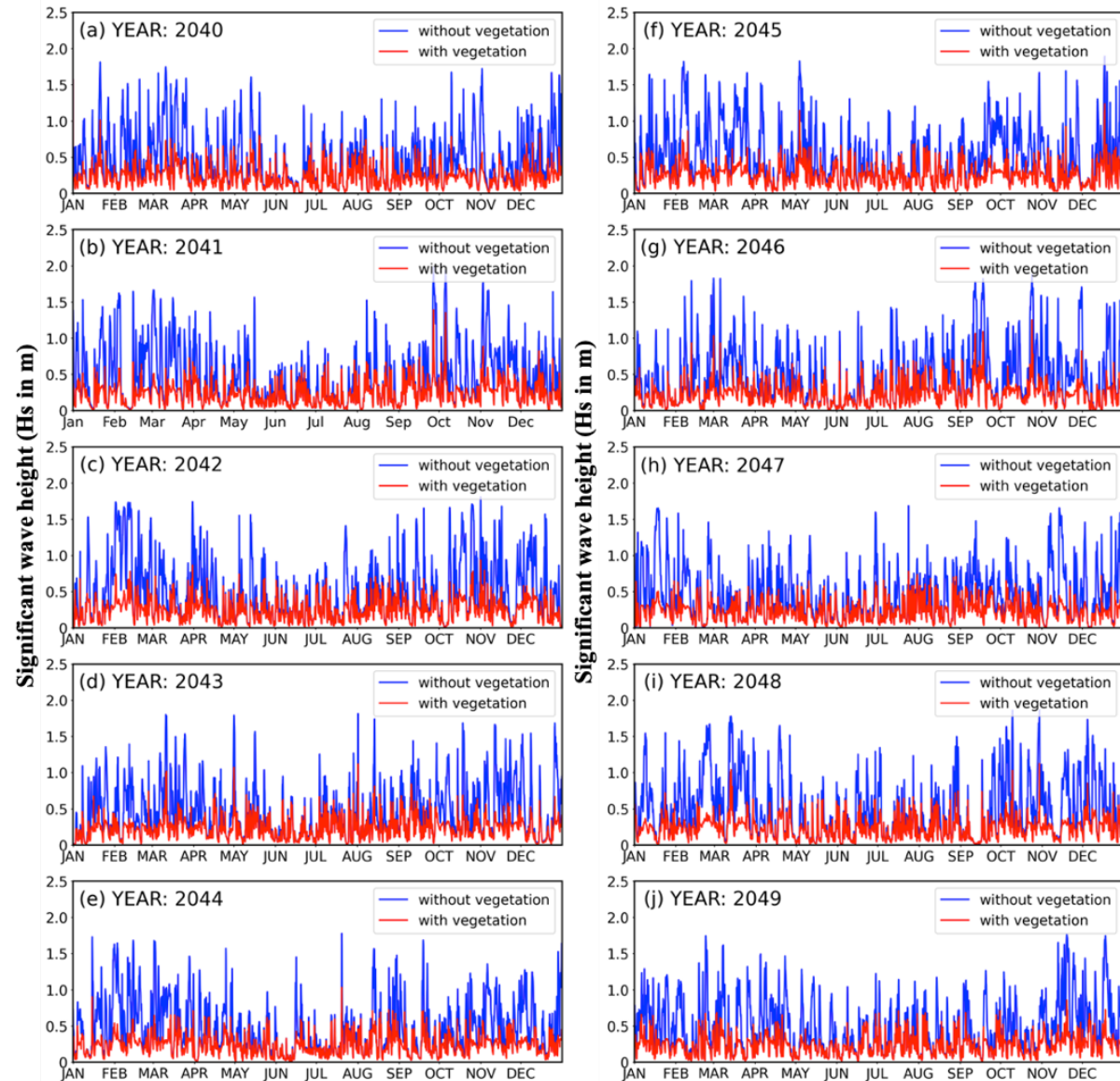
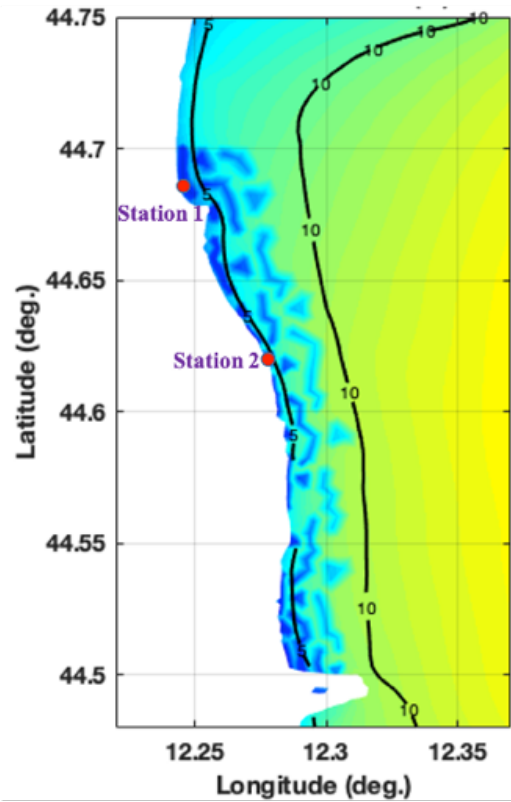


Future Climate: 2040-2049

Wave Attenuation Maps



Time-series comparison (2040-49) of H_s , with & without vegetation at Station 2

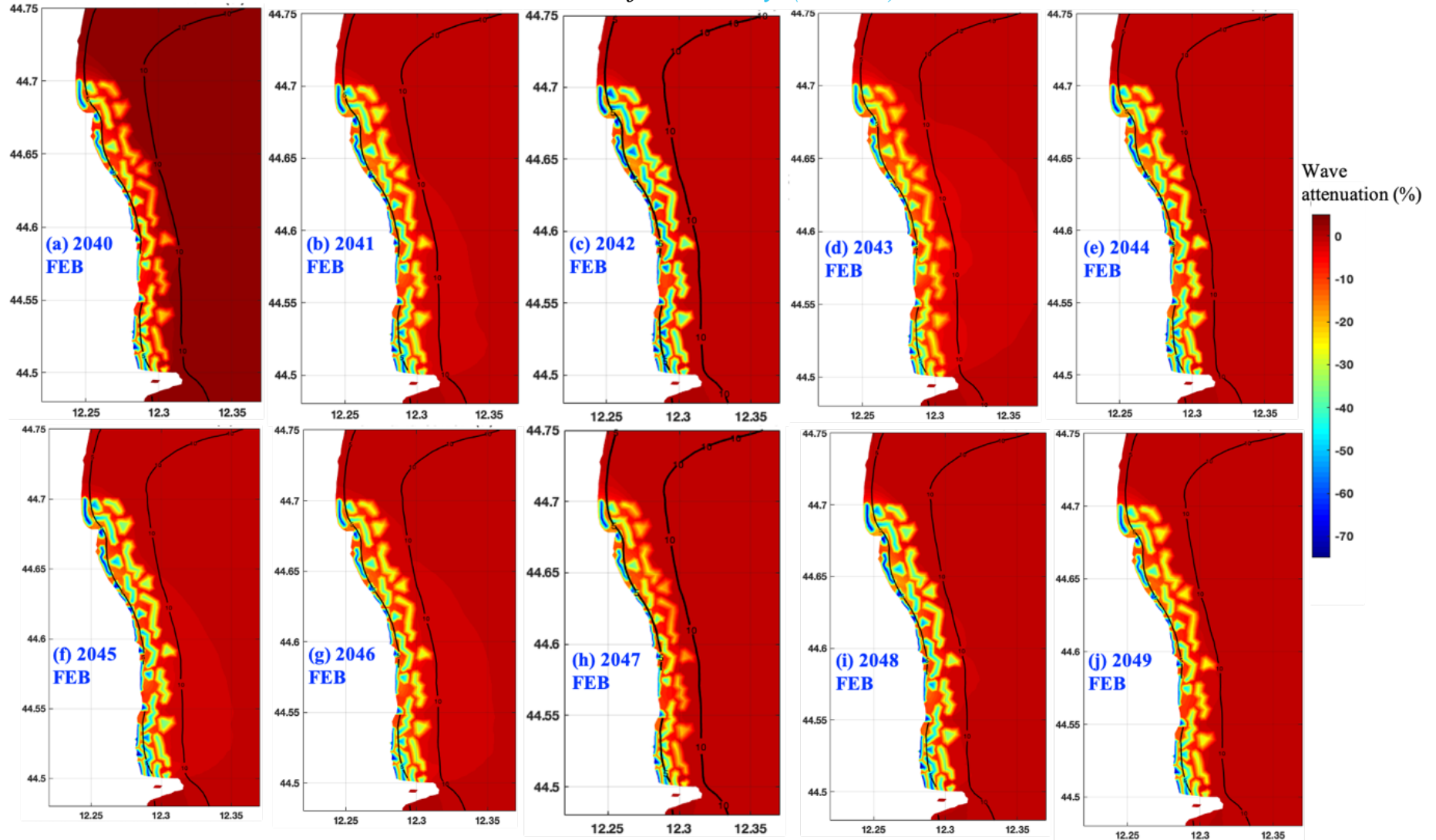




WAVE ATTENUATION MAPS



Mean monthly percentage variation of wave height with *Zostera Marina* during 2040-49 for the month of *February* (winter).





WAVE ATTENUATION MAPS



Mean monthly percentage variation of wave height with Zostera Marina during 2040-49 for the month of August (Summer).

