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# **On using satellite altimetry and gravimetric data in mapping the Moho constituents for Fennoscandia**

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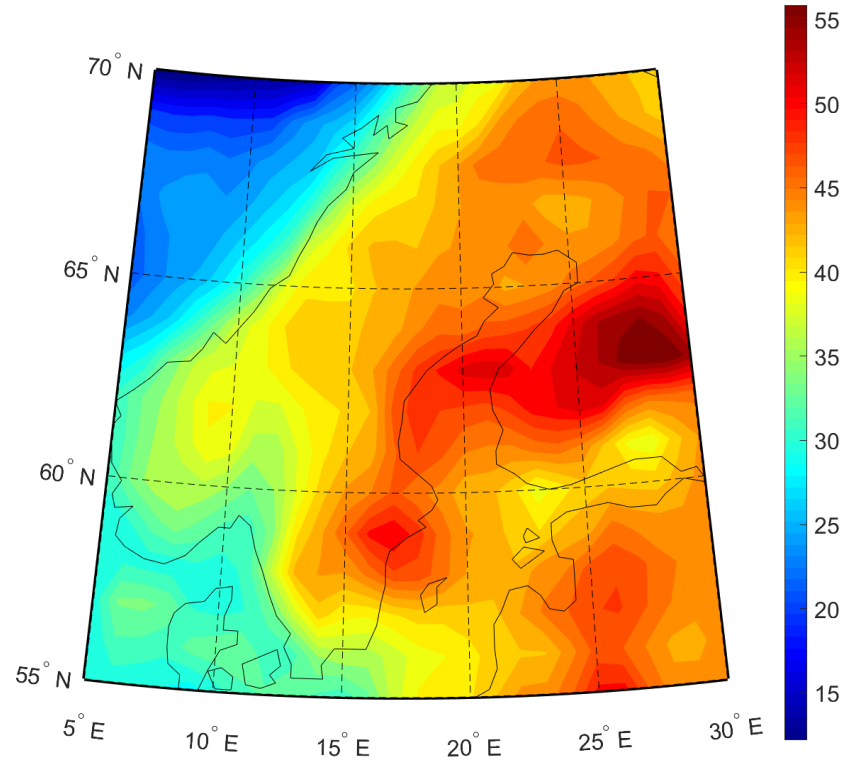
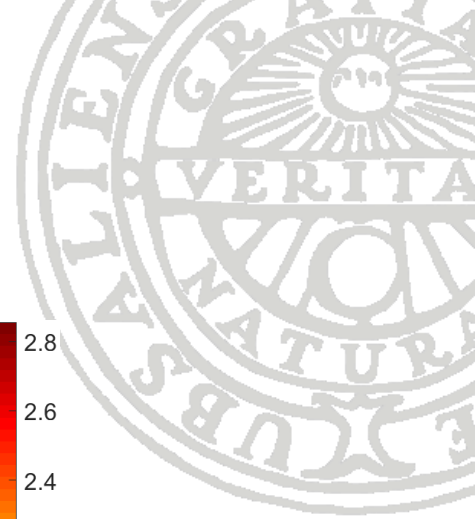
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# **Moho constituents (i.e., Moho depth, MD, and Moho density contrast, MDC) determination**

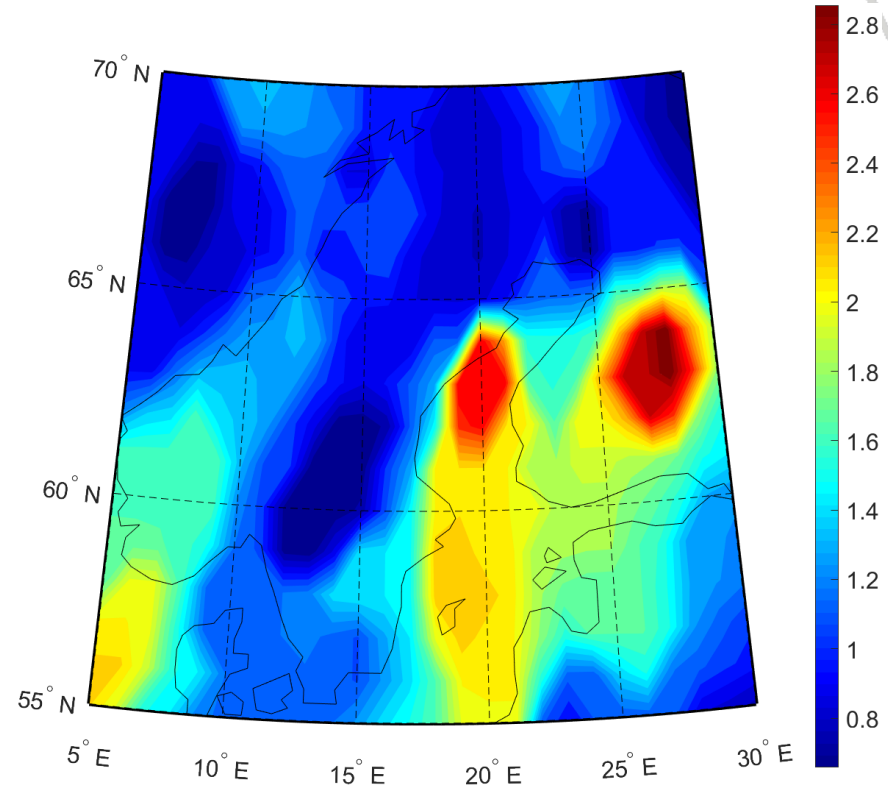
1. Combination of five global MD models by a weighted least-squares procedure (MOUU22 MD),
2. Combination of three global MDC models by a weighted least-squares procedure (MOUU22 MDC).



# Numerical results



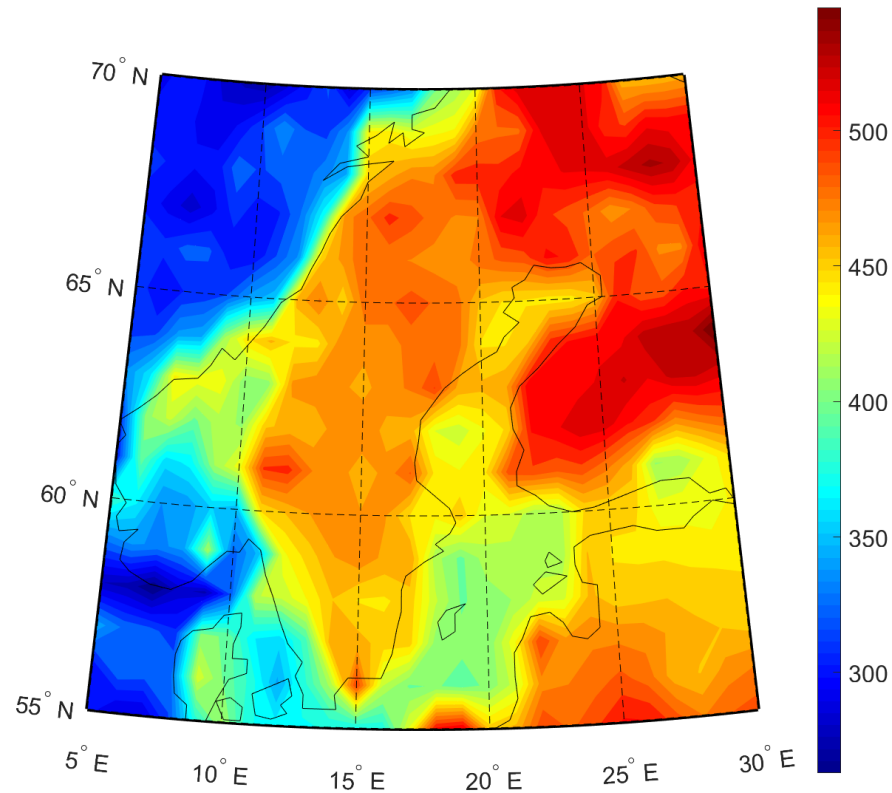
**Figure 1a.** The MOU22 MD. (Unit: km)



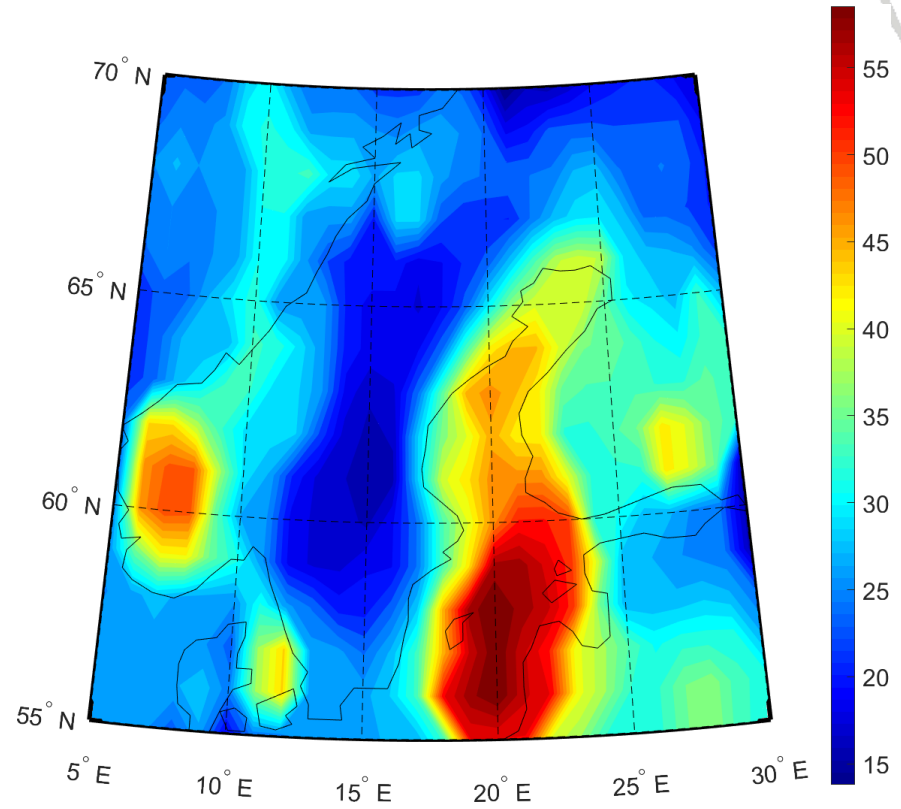
**Figure 1b.** The standard errors of the estimated MOU22 MD. (Unit: km)



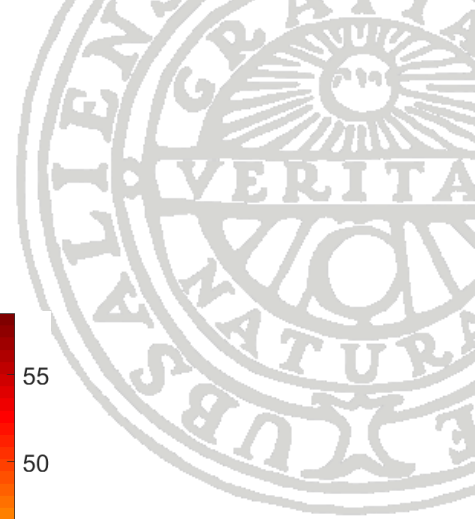
# Numerical results



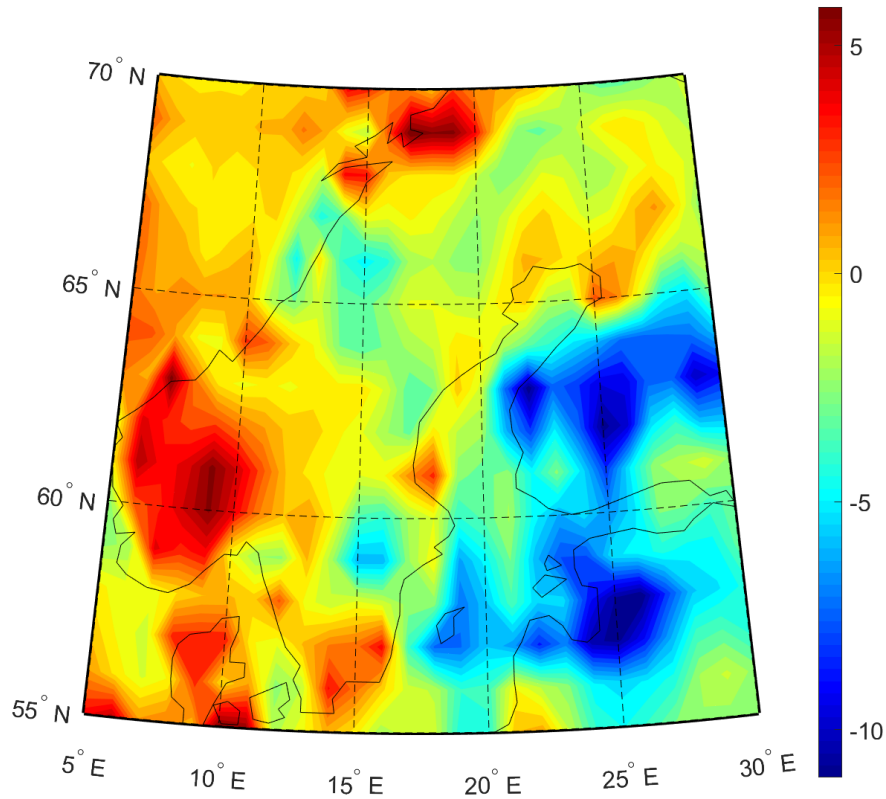
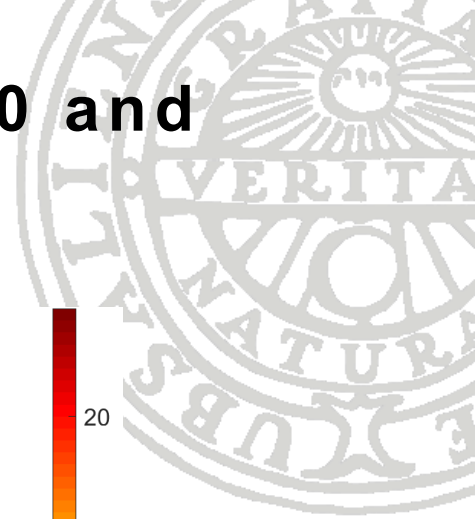
**Figure 2a.** The MOU22 MDC. (Unit: kg/m<sup>3</sup>)



**Figure 2b.** The standard errors of the estimated MOU22 MDC. (Unit: kg/m<sup>3</sup>)

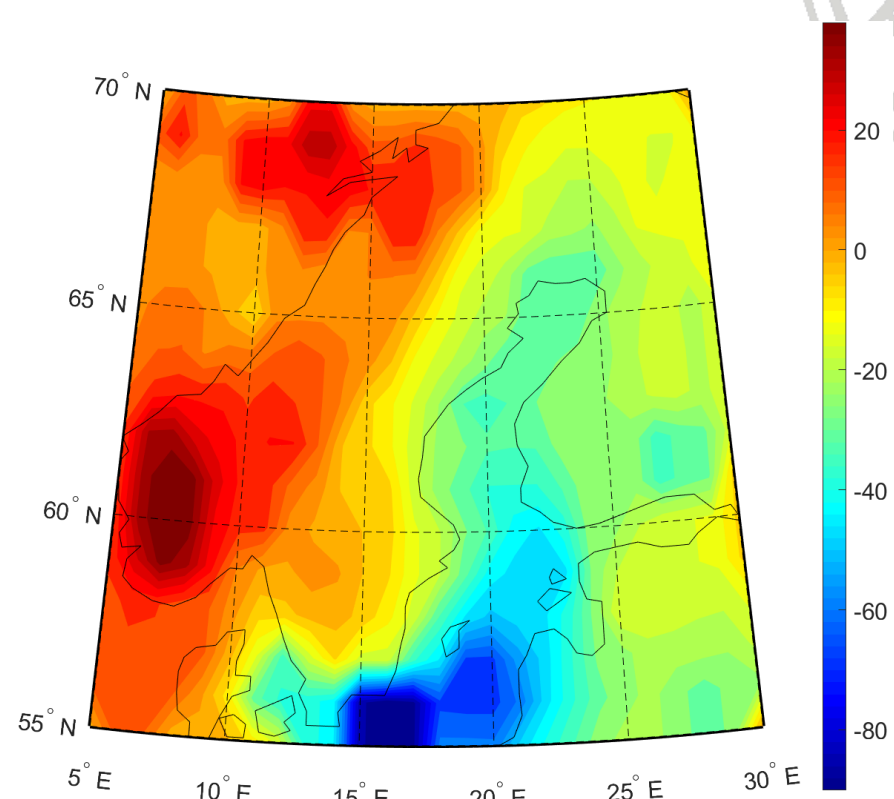


# Comparison with other Moho models (i.e. CRUST1.0 and GRAD09)



**Figure 3a.** The difference between GRD04 and MOUU22 MD. (Unit: km)

**RMS difference: 3.08 km**



**Figure 3b.** The difference between CR1 and MOUU22 MDC. (Unit: kg/m<sup>3</sup>)

**RMS difference: 23.30 kg/m<sup>3</sup>**



## Conclusion

Model MOUU22 combines MD estimates from five global models and MDC from three models at a resolution of  $1^\circ \times 1^\circ$ . The combination is performed pixel by pixel by highlighting good and toning down bad data in a least-squares sense. By including correlations among the data in the weighting procedure, no information is repeatedly used.

The MD and MDC in southern Finland is among the largest in the world.

