Ocean tide models for Skagerak and Kattegatt

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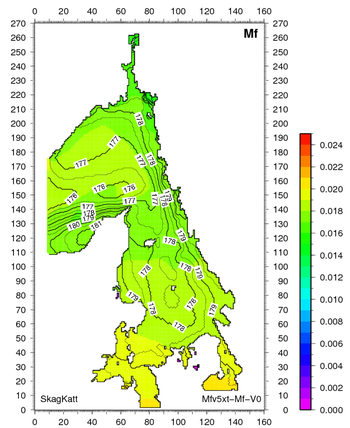
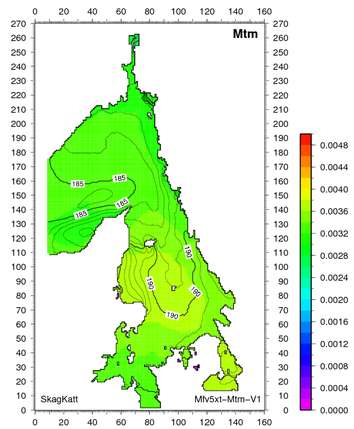
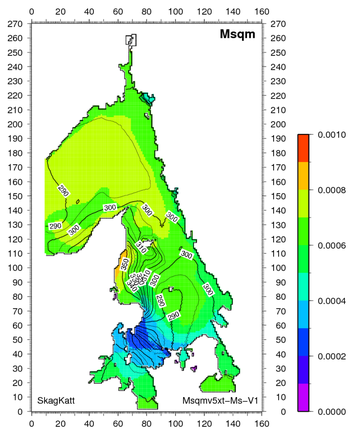
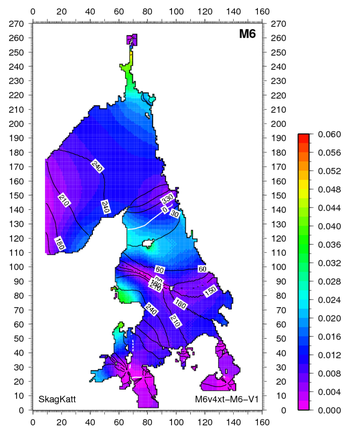
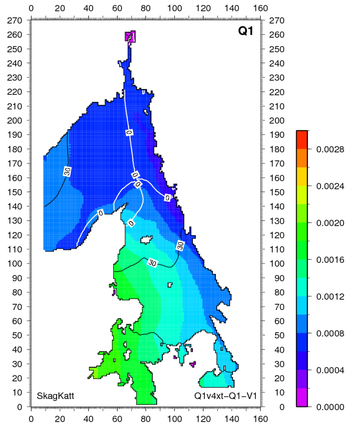
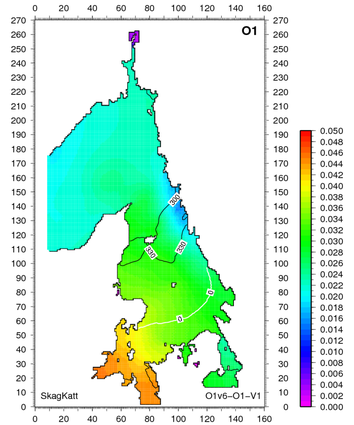


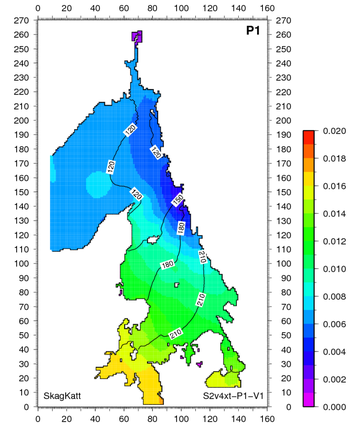


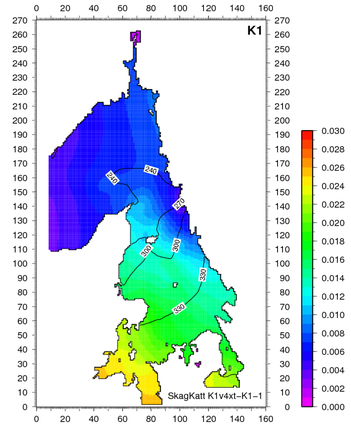


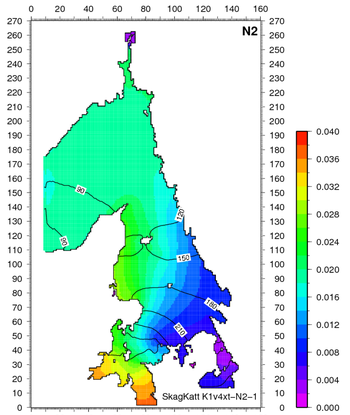


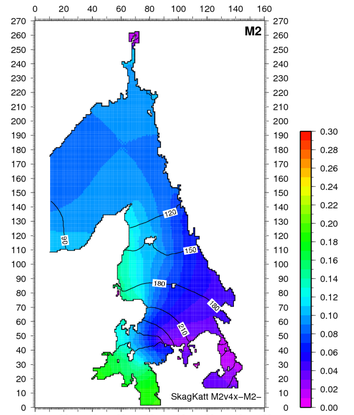


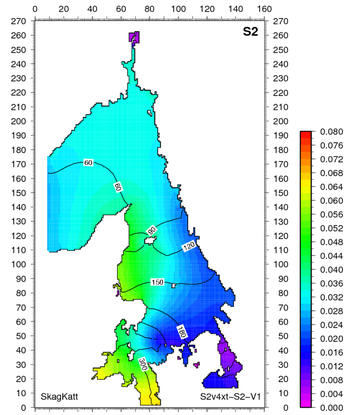


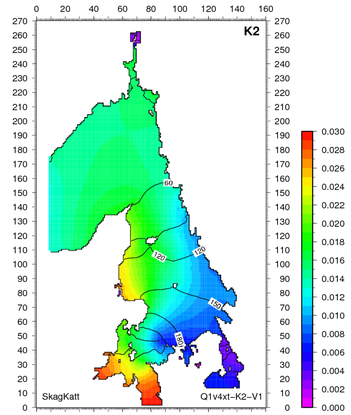












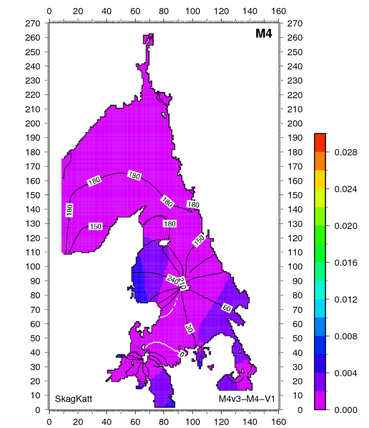
Top row: Long-period tides 14 and 10.3 lundar days, and M6 (sexa-diurnal)
Middle row: Diurnal tides
Bottom row: Semi-diurnal tides

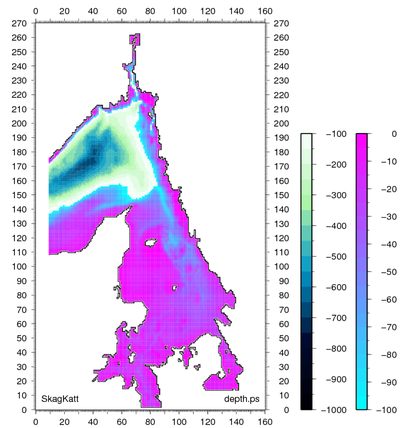
M6-disclaimer: The M6 tide is unscaled; boundary values were simply transferred from the FES2004 M4 tide. Since there is no tide generation from external gravitational forcesat this frequency, the response is manily with respect to the Skagerak boundary , and can be adjusted if the M6 is known there.

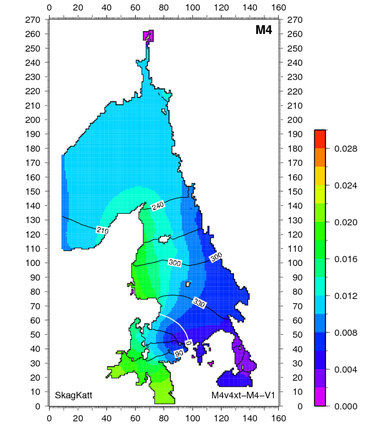
Excitation: Mainly due to **inflow** in Skagerak. Global Ocean Tide model TPXO.7.2 (Egbert and Erofeeva, 2002) except FES2004 (Letellier, 2004) for **Msqm** and **M4**

Inside basin: **Tide generating potential** due to Tamura (1978) and loading from external ocean tide masses due to TPXO.7.2 / FES2004

Self-Attraction and Self-loading using a paramter of 0.02





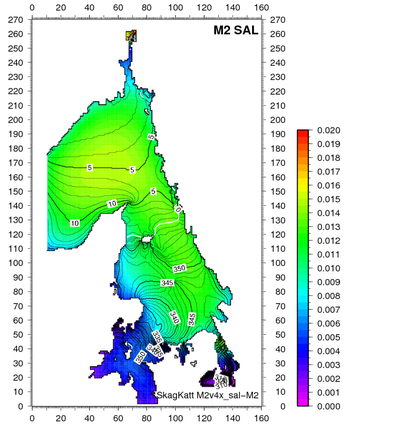


Quarter-diurnal nonlinear tide M4

Top: Internally generated only

Bottom: With connection to North Sea, using Global Ocean Tide model FES2004 (Letellier, 2004)

Both drawn to same amplitude scale



Local self-attraction and –loading ratio here of the M2 tide

METHOD: Nonlinear ocean tide equations:

1 - Nonlinear bottom friction
2 - Advection
3 - Shallow water

Program code: OTEQ/TTEQ

http://froste.oso.chalmers.se/hgs/OTEQ