



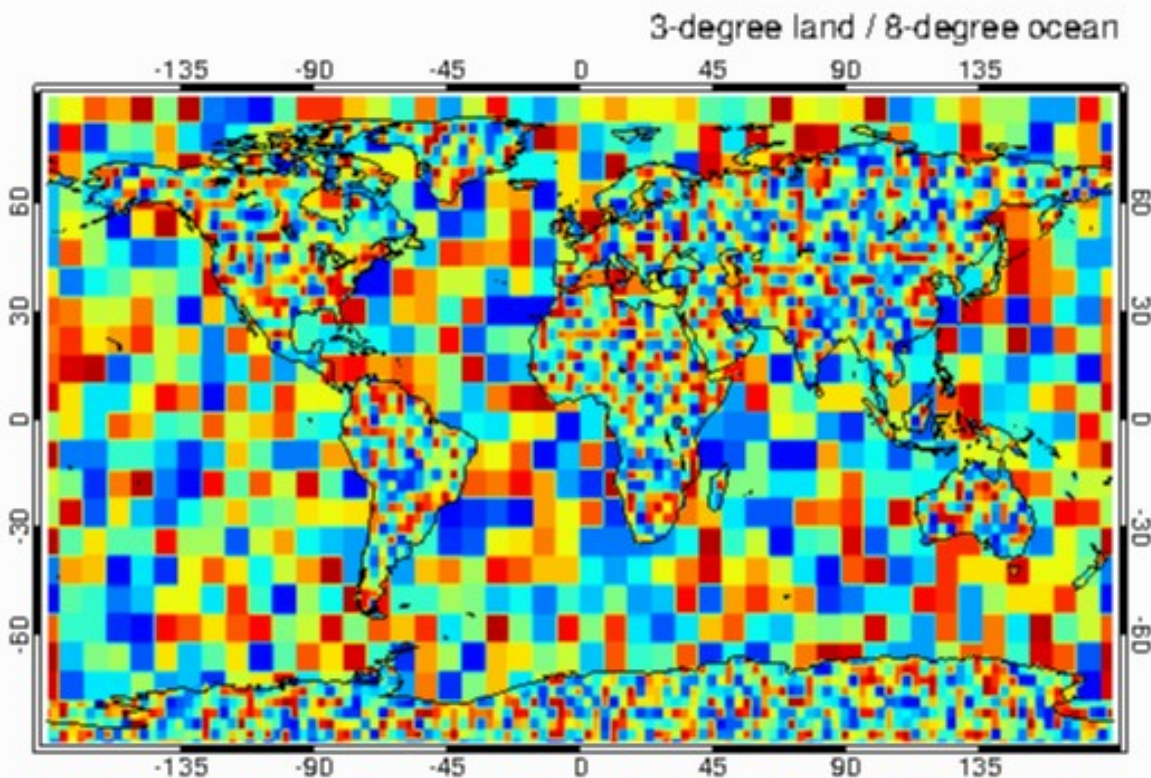
Examples of Different Ways to Tile the Globe



Tiles can be defined in many ways

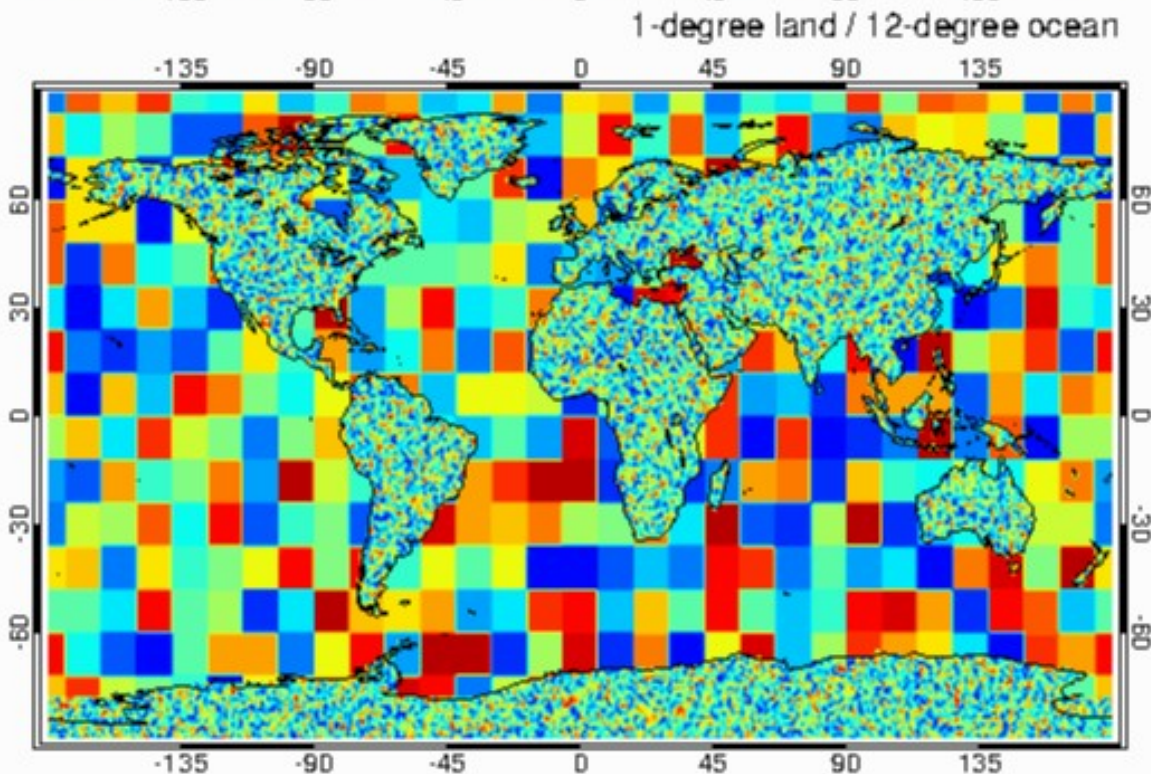
Top:

3-degree tiles over land, 8-degree tiles over the ocean



Bottom:

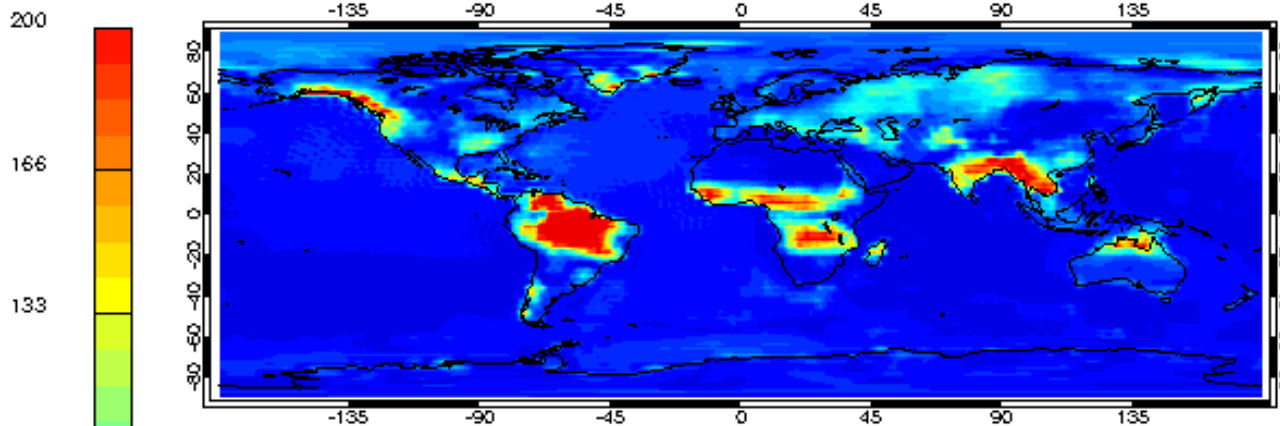
1-degree tiles over land, 12-degree tiles over the ocean



Note that not all tiles are rectangular; tiles that intersect coastlines are split

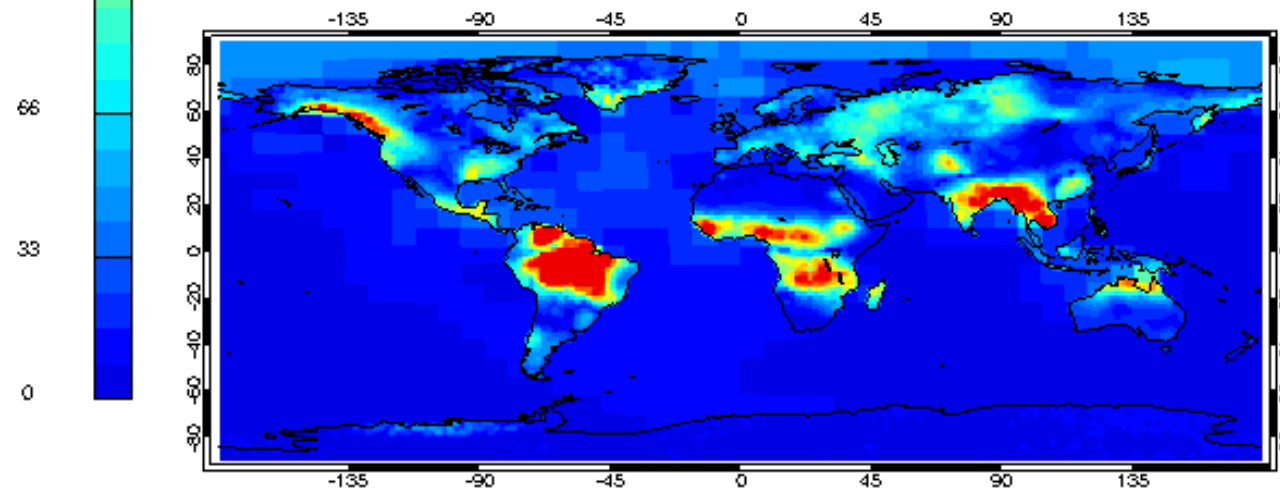
**With constraints (correlations w/ neighbors), small tiles
can be used**

Annual Amplitude GRACE JPL Mascon



**Top: Annual amplitude,
JPL mascons**

Annual Amplitude Tile Inversion

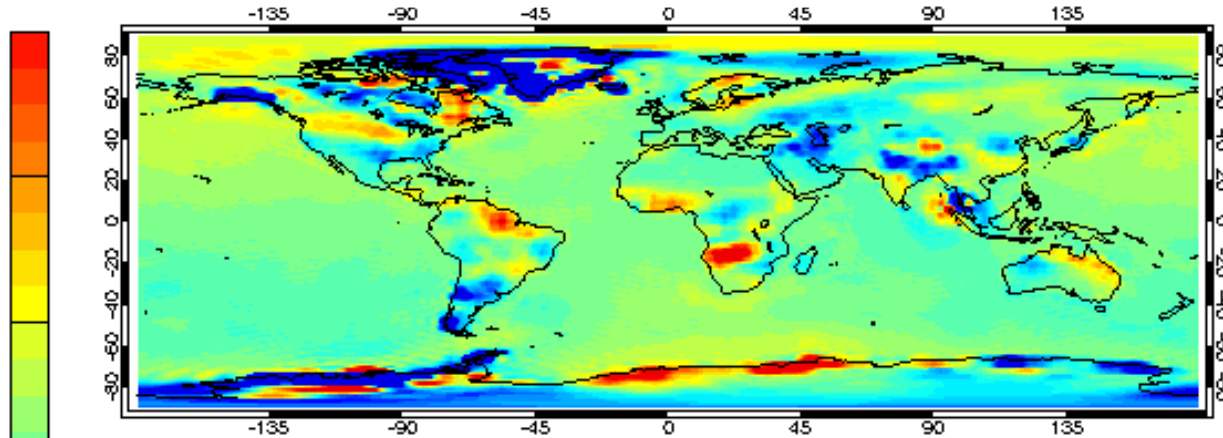


**Bottom: Tile inversion on
CSR SH coefficients**

mm

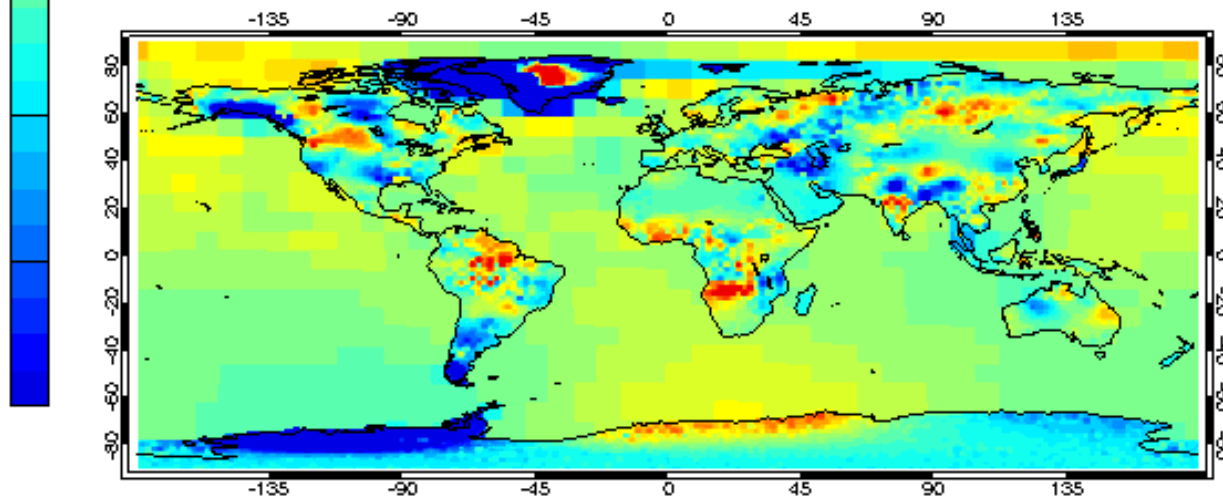
Trend Comparison

Trend: (2003-2013) GRACE JPL Mascon



**Top: Linear Trend, JPL
mascons**

Trend: (2003-2013) Tide Inversion



**Bottom: Tide inversion on
CSR SH coefficients**

mm/yr

Quite similar, but differences are interesting...

The tiles in these examples are rectangular lat/lon, but any shapes can be used: discs, catchments, arbitrary regions.

Q: Is there a difference between solving for regions rather than solving for small blocks and summing?

Q: What is sensitivity to correlation lengths?

Q: What is sensitivity to a priori variability estimate?

Q: What is the effect on trends?

Q: What is the effect of removing a seasonal cycle prior to the inversion, and adding back later?