**Sparseness**: an alternative metric for Argo Float coverage

AST-15
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- Definition: Sparseness = Average distance to N nearest floats. E.G. how far, on average, do you have to go in the ocean to find an active Argo float?
- If target is one float per 100,000 km$^2$, a uniform grid has sparseness = 316 km
- Average distance to four nearest is rough estimate of distance to nearest neighbor on each of the four points of the compass
- More maps at http://argo.whoi.edu/maps/sparse
Mollweide equal-area projection

Regions less than 1000 m depth are shaded white
February 2014

Argo float coverage, active floats reported at GDAC Data Assembly Center

Argo Float Sparseness: Average distance to 4 nearest floats. DAC=GDAC
Most recent 10-day snapshot

Argo float sparseness: Average distance to 4 nearest floats. DAC=GDAC

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- If target is one float per 100,000 km², a uniform grid has sparseness = 316 km

- Average distance to four nearest corresponds to nearest neighbor on each of the four points of the compass

- Estimate of Integral area adequately covered by Argo floats

- Question: How much of ocean is surveyed on 300 km spatial scale?
Estimate of Integral area covered by Argo floats.
How much of ocean is surveyed on 300 km spatial scale?

*fraction of ocean covered, water deeper than 1000 m, not including Arctic or south of 60° S.*
6-year Mean of Float Sparseness Index

Average Argo float coverage: 2008-01-05 to 2014-01-03
What is integral picture of where Argo floats go?

Diagnosed streamfunction from RAW Argo profile positions

Non-divergent Streamfunction based on two-degree bin-averaged subsurface vectors of Argo floats reporting to the GDACs.
Objectively mapped Psi with isotropic 5° spatial correlation length scale.
If we launch a Argo float, where on average do we expect it to go?

Diagnosed streamfunction from RAW Argo profile positions

Floats follow isopleths of streamfunction

corriem = 5.0, dx=2.0