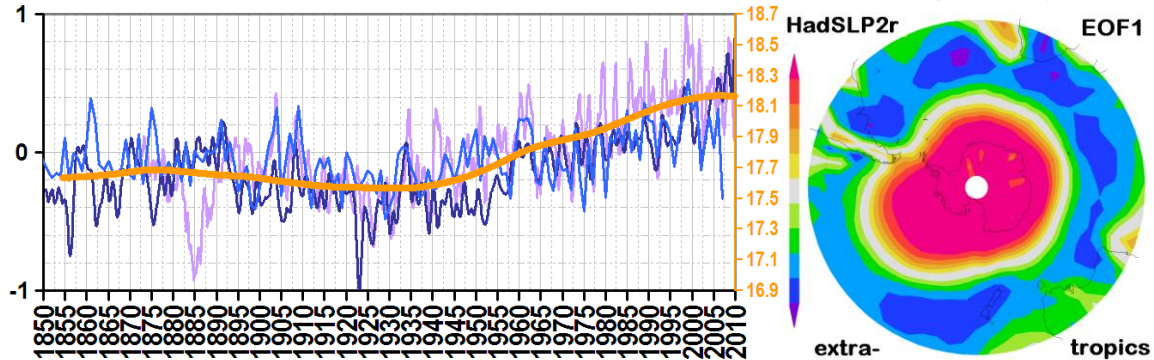


Sunspot Integral & Southern Annular Mode (SAM)

Paul Vaughan, M.Sc. – June 21, 2014

Fatal, permanent, intractable corruption of solar & climate science obscures a simple & ultimately inescapable truth: The sun governs terrestrial climate.

- 3 SAM indices (SAM = Southern Annular Mode)
- **RI** calibrated to SH ERSSTv3b2
(**sunspot integral** calibrated to southern hemisphere sea surface temperature)

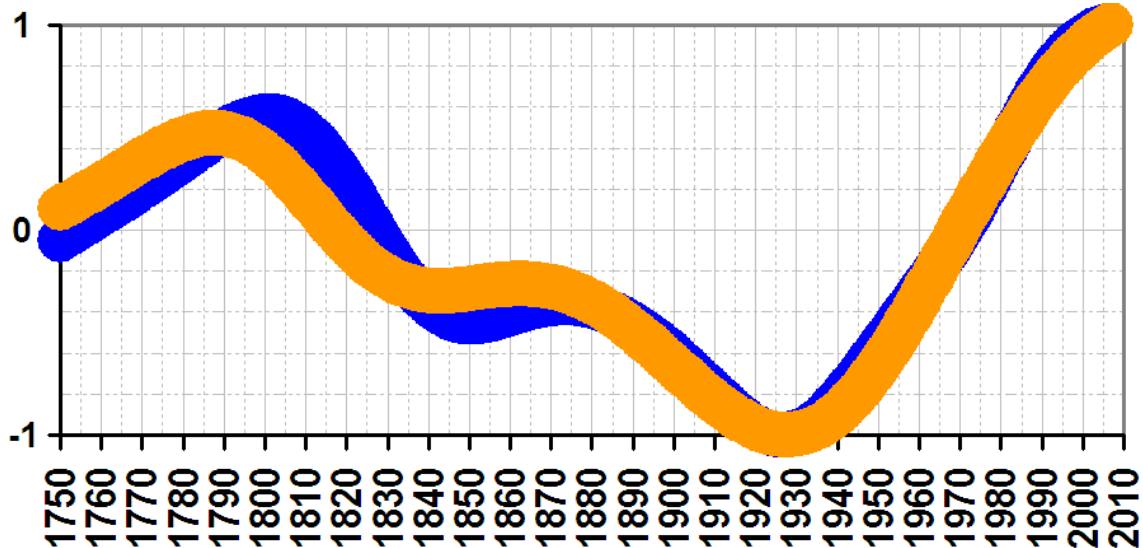


- lavender = NOAA 20CR AAO (that's *reanalysis*, so interpret and weight in judgement accordingly)
(SAM \sim AAO = Antarctic Oscillation; 20CR = 20th century reanalysis)
- indigo = EOF1 of southern extratropical HadSLP2r (sea level pressure) ([KNMI](#))
(\sim EOF2 of global HadSLP2r (where global EOF1 \sim SOI)) (EOF = empirical orthogonal function)
- blue = SAM reconstruction (http://ftp.ncdc.noaa.gov/pub/data/paleo/contributions_by_author/abram2014/abram2014sam.txt)

= Figure 2 here:

Abram, N.J.; Mulvaney, R.; Vimeux, F.; Phipps, S.J.; Turner, J.; & England, M.H. (2014). [Evolution of the Southern Annular Mode during the past millennium](#). Nature Climate Change.

RI = Sunspot Integral
SAM Reconstruction



The following article links to a **geometric proof** of solar governance of terrestrial climate (based on the **laws** of large numbers & conservation of angular momentum):

- [ERSST EOF 1234](#)

What needs to be done to re-establish the integrity of mainstream climate science is simple: The Milankovitch framework needs to be extended to include the solar cycle and the role of insolation gradients in terrestrial circulation.