



*Klimarealistene*  
P.O. Box 33,  
3901 Porsgrunn  
Norway  
ISSN: 2703-9072

Correspondence:  
haraldyn-  
destad@mac.com

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## Little Ice Age 1330 to 2150 A.D.

*Harald Yndestad*

*Prof. em. NTNU*

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### Summary of Conference Speech

A wavelet spectrum analysis of TSI data series from 1000 AD and 1700AD computed a Maunder-Dalton type next deep solar minimum at the year 2049 (Yndestad and Solheim 2017). New investigations have revealed that The Little Ice Age is controlled by interference between TSI variations from the sun, solar forced accumulation of heat in oceans and lunar forced distribution of heat in oceans (Yndestad 2022). Coincidences between the planets Saturn, Uranus, and Neptune, are controlling TSI periods up to 4450 years. Lunar forced climate has periods up to 445 years.

During the last 4450-year period, there has been two Little Ice ages. The first has a coincidence to the end of Bronze Age civilizations close to 1200 BC. The last Little Ice Age covers a total period eight solar minima from 1330 to 2150 A.D. The upcoming solar minima is a computed Spörer-type minimum in 2050 and a deep minimum in 2211. Analysis of Solar forced accumulation of heat in oceans has resulted in a further deep temperature minimum in the year 2071 AD, the deepest computed climate minimum since 1200 BC.

### References:

Yndestad, H., & Solheim, J. 2017. *The influence of solar system oscillation on the variability of the total solar irradiance*. *New Astronomy*, 51, 135-152. [doi.org/10.1016/j.newast.2016.08.020](https://doi.org/10.1016/j.newast.2016.08.020). <https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/2473902>

Yndestad H. 2022. *Jovian Planets and Lunar Nodal Cycles in the Earth's Climate Variability* *Frontiers in Astronomy and Space Sciences*. May 10. 2022. <https://doi.org/10.3389/fspas.2022.839794>