

The faint young Sun: Problem, paradox, or distraction?

Paleo-Earth constraints

- Climate modeling of the early Earth: What happened when and how well do we know it? (Jim Kasting, PSU, jfk4@psu.edu) confirmed
- The case for a hot early Earth. (David Schwartzman, Howard University, dws@scs.howard.edu) confirmed
- Surface temperature constraints from oxygen and silicon isotopes (Paul Knauth, Arizona State, knauth@asu.edu)
- CO₂ constraints from paleosols. (Nathan Sheldon, Univ. of Mich., nsheldon@umich.edu) confirmed
- CO₂ constraints from banded iron-formations. Minik Rosing (University of Copenhagen, Minik@snm.ku.dk) confirmed
- Other geochemical constraints on the early Earth's atmosphere (Norm Sleep, Stanford, norm@stanford.edu) confirmed
- Temperatures in the early oceans (Ruth Blake, Yale, ruth.blake@yale.edu)
- Constraints from early Mars (TBD)

Astronomical aspects

- Introduction: The motivation for wishing the Sun to solve this problem. (Soderblom) confirmed
- Galactic knowledge of the formation of stars like the Sun and of planetary systems and the birth environment of the Sun. Fred Adams wrote a very nice paper on this in the 2010 Annual Reviews, and it is intriguing how well one can narrow down the conditions that were present early-on in the history of the Solar System. (Fred Adams, U. Mich., fca@umich.edu) confirmed
- The standard solar model, its basis and limitations, and how it leads to the ZAMS luminosity. (Marc Pinsonneault, OSU, pinsonneault.1@osu.edu) confirmed
- Observational tests of the solar model from asteroseismology (Victor Silva Aguirre, MPA-Garching, vsilva@mpa-garching.mpg.de)
- Helioseismology, its successes and limits, and its constraints on the early solar luminosity. (Sarbani Basu, Yale, sarbani.basu@yale.edu) confirmed
- The measurements of winds in Sun-like stars. (Jeff Linsky, Boulder, jlinsky@jila.colorado.edu) confirmed
- The Sun in its youth. (Alicia Aarnio, U. Mich., aarnio@umich.edu)
- The dynamics of the Solar System: Has the Earth always been at 1 AU? (David Minton, Purdue, daminton@purdue.edu)
- Stellar constraints on early solar behavior, such as the convergence in rotation by ~1/2 Gyr (Hyades age) and the likely relation of a strong initial wind to rapid rotation. (Jeremy Drake, CfA, jdrake@cfa.harvard.edu) confirmed