NUCLEAR REACTIONS SEEN IN SOLAR FLARES END MYTH OF HYDROGEN SUN (CCNet 6/2006, 11 Jan 06)

(9) NUCLEAR REACTIONS AT SOLAR SURFACE UNDERCUT THE DOGMA OF A HYDROGEN-FILLED SUN

Oliver K. Manuel <oess@umr.edu>

Dear Benny,

Hai Xu *et al.* empirically demonstrate solar variability on millennial and shorter time scale [CCNet 3/2006, 4 January 2005], as noted by Professor Hermann Burchard [CCNet 4/2006, 6 January 2005].

However, it does not follow that changes in Earth's climate can be explained by *"the violent convective processes"* that transport *"heat energy from nuclear processes deep inside the Sun"* [Burchard, CCNet 4/2006, 6 January 2005].

Earth's climate may more closely follow the surface activity that causes the coronal temperature inversion and generates an electrified gas that is 300 times hotter than the Sun's visible surface [See pp. 4-5 and Fig 1 of "Observational confirmation of the Sun's CNO cycle"].

http://arxiv.org/pdf/astro-ph/0512633

Solar physicists in the Astronomy Department at the University of Maryland, the Space Sciences Laboratory at UC-Berkeley, and the Nobeyama Radio Observatory in Nagano, Japan have published additional evidence that solar flares generate surface temperatures exceeding a billion K (Kelvin):

http://www.astro.umd.edu/~white/papers/03_norh_020723.pdf

Experimental measurements on gamma-rays, neutrinos, visible light, and x-rays conflict with the suggestion that:

a.) The interior of the Sun is made of lightweight elements (H, He, C, N, and O) like its surface, and

b.) H-fusion in the solar core produces the heat that causes climate changes.

Observations of nuclear reactions in solar flares at the surface of the Sun undercut this dogma because:

Hans Bethe predicted that H, He, C, N, and O would at high temperature fuse H into He by the CNO cycle [*Phys. Rev.* **55**, 103 (1939)]:

$$4\ \mathrm{H\text{-}1} + \mathrm{C\text{-}12} \wedge \mathrm{He\text{-}4} + \mathrm{C\text{-}12}$$

The CNO cycle releases high energy neutrinos from N-13 and O-15.

NUCLEAR REACTIONS SEEN IN SOLAR FLARES END MYTH OF HYDROGEN SUN (CCNet 6/2006, 11 Jan 06)

From the low number of solar neutrinos observed in the first measurements it was concluded that the CNO cycle produces "less than 9% of the sun's energy" [R. Davis, Jr., D. S. Harmer, and K. C. Hoffman, *Phys. Rev. Lett.* **20**, 1205-1209 (1968)].

Recent measurements conclude that even if the CNO cycle produces NONE of the sun's energy, the number of neutrinos detected is only about 35% of the number predicted for the proton-proton chain [Q. R. Ahmad, *et al., Phys. Rev. Lett.* **89**, 011301, 6 pp. (2002).]

It has become popular to attribute the deficit of solar neutrinos to neutrino oscillations, ***but . . .***

Nuclear reactions observed with spectrometers in solar flares at the surface of the Sun confirm Bethe's prediction!

http://arxiv.org/pdf/astro-ph/0512633

Since the CNO cycle is observed in the mix of H, He, C, N, and O found at the solar surface, ***what prevents the CNO cycle from occurring in the deep interior of the Sun if the same lightweight elements are there ??***

This question was answered at the First Crisis in Cosmology Conference, *"Isotopes tell Sun's origin and operation"*

http://arxiv.org/pdf/astro-ph/0510001

Nuclear reactions at the solar surface also explain the excess N-15 [J. F. Kerridge, *Science* **188**, 162-164 (1975)], excess Lithium [M. Chaussidon and F. Robert, *Nature* **402**, 270-273 (1999)] and excess Be-10 [K. Nishiizumi and M. W. Caffee, *Science* **294**, 352-354 (2001)] observed coming from the solar surface.

All of these observations are inconsistent with the model of a Sun of uniform composition.

With kind regards,

Oliver K. Manuel
--
Professor of Nuclear Chemistry
University of Missouri
Rolla, MO 65401 USA
Phone: 573-341-4420 or -4344
Fax: 573-341-6033
E-mail: oess@umr.edu or om@umr.edu
http://www.umr.edu/~om/
http://www.ballofiron.com

HOME