

PLANETARY SUPPORT FOR THE ROLE OF NATURAL VARIABILITY IN CLIMATE CHANGE

A series of papers released showing a global warming on other planets points towards the role of the sun in our recent climate change supported by US data.

NEPTUNE'S MOON TRITON

According to Massachusetts Institute of Technology astronomer James L. Elliot and his colleagues from MIT, Lowell Observatory and Williams College has reported that observations obtained by NASA's Hubble Space Telescope and ground-based instruments reveal that Neptune's largest moon, Triton, seems to have heated up significantly since the Voyager space probe visited it in 1989. The warming trend is causing part of Triton's surface of frozen nitrogen to turn into gas, thus making its thin atmosphere denser. This report in the June 25 issue of the journal Nature

The moon is approaching an unusually warm summer season that only happens once every few hundred years. Elliot and his colleagues believe that Triton's warming trend could be driven by seasonal changes in the absorption of solar energy by its polar ice caps. For more see <http://web.mit.edu/newsoffice/1998/triton.html>

JUPITER NEW RED SPOT SIGNALS WARMING

Jupiter is growing a new red spot and the Hubble Space Telescope is photographing the scene. The latest images could provide evidence that Jupiter is in the midst of a global change that can modify temperatures by as much as 10 degrees Fahrenheit on different parts of the globe. The study was led jointly by Imke de Pater and Philip Marcus of University of California, Berkeley. For more see: http://www.usatoday.com/tech/science/space/2006-05-04-jupiter-jr-spot_x.htm?POE=TECISVA

PLUTO WARMING

A Pluto study funded by NASA, the Research Corporation and the National Science Foundation. Observations were made using the telescopes at the Mauna Kea Observatory, Haleakala, Lick Observatory, Lowell Observatory and the Palomar Observatory today said Pluto is undergoing global warming in its thin atmosphere even as it moves farther from the Sun on its long, odd-shaped orbit.

Pluto's atmospheric pressure has tripled over the past 14 years, indicating a stark temperature rise, the researchers said. They suspect the average surface temperature increased about 3.5 degrees Fahrenheit, or slightly less than 2 degrees Celsius. For more see http://www.space.com/scienceastronomy/pluto_warming_021009.html

MARS WARMING LIKE THE EARTH

In 2005 data from NASA's Mars Global Surveyor and Odyssey missions revealed that the carbon dioxide "ice caps" near Mars's south pole had been diminishing for three summers in a row.

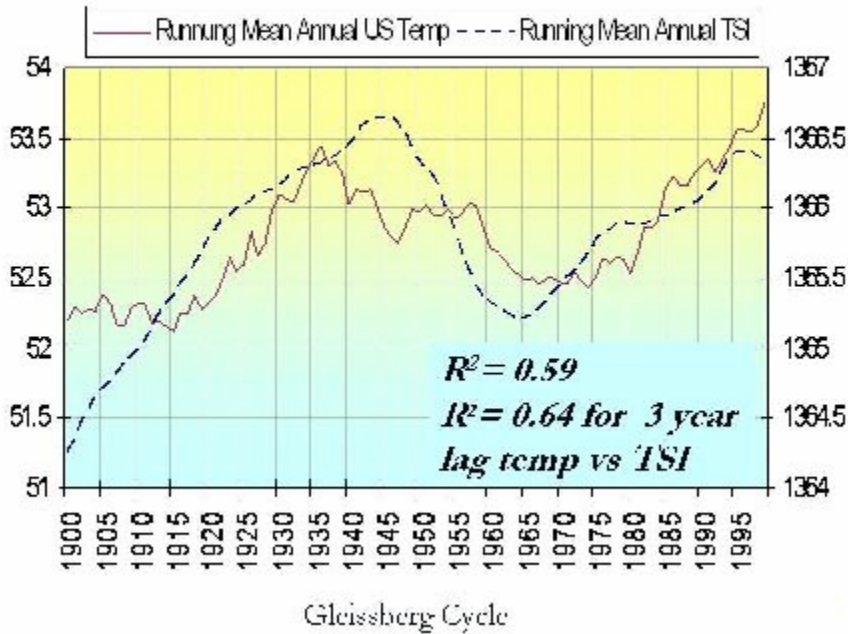
Habibullo Abdussamatov, head of space research at St. Petersburg's Pulkovo Astronomical Observatory in Russia, says the Mars data is evidence that the current global warming on Earth is being caused by changes in the sun. See National Geographic story <http://news.nationalgeographic.com/news/2007/02/070228-mars-warming.html>

RELATIONSHIP WITH SOLAR?

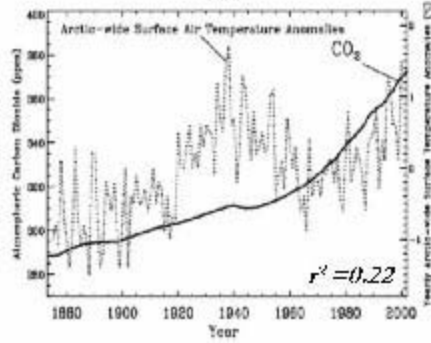
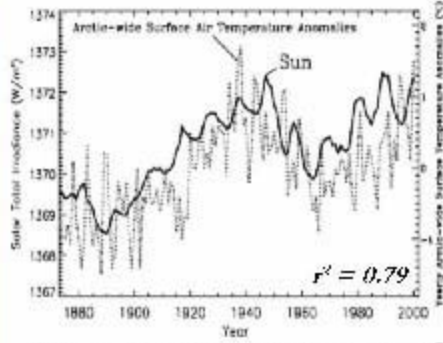
The common warming across the planets suggest an external influence is at work, the sun.

Our **SOLAR CYCLE** factor in All About Climate describes how the sun plays a role in warming in the US and polar regions. Note how well the solar irradiance (brightness) as estimated by Hoyt and Schatten matches with the US annual mean temperatures. The brightness is a proxy for the total solar effect which includes not only the basic illuminance but also the less direct but probably more important ultraviolet/ozone warming and the geomagnetic/cosmic ray/low cloud factors.

NCDC Annual Mean US Temperature vs Hoyt Schatten TSI



Soon (2006 GRL) showed how the polar basin wide average temperatures correlated with an r-squared of 79% with solar irradiance compared with just 22% for carbon dioxide.



Arctic Annual Mean Temperatures vs Solar Irradiance

(Soon GRL 2005)

Fit is much better of solar irradiance with arctic temperatures (Polyakov) than with CO₂