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Attachment(s):
(1) "livemint", 239 KB pdf, 2 pages.

: Re:
: India joins international
: group to study the sun
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Dear ISWI Participant:

Attached is "space weather related news" from India.
(Thanks to Dr Nat Gopalswamy for sending this in.)

If your country has such news, please send to me for newsletter circulation. Let the ISWI community know what your country is doing for space weather.

To paraphrase President J F K :
Ask not what ISWI can do for your country. Ask what your country can do for ISWI.

Cordially yours,
: George Maeda
: The Editor
: ISWI Newsletter

Posted: Tue, Mar 29 2011. 1:00 AM IST

India joins international group to study the sun

Bhargavi Kerur

Indian scientists are moving closer to launching three projects that are proposed to be part of a global effort to study the impact of an overheating sun.

The first of these—a special telescope to study the atmosphere around the sun, known as corona—was approved by the Union government six months ago and a memorandum of agreement will be signed with the Indian Space Research Organisation (Isro) in a few weeks, said Siraj Hasan, director of the Bangalore-based Indian Institute of Astrophysics (IIA), the main body working on all three projects.

The sun is entering a phase known as solar maxima, a period of intense heating that sees an increase in the number of solar flares and in the formation of sun spots. The phase lasts five-six years and follows a period called solar minima, a phase of low activity. The entire cycle lasts about 11 years.

During solar maxima, charged particles such as protons and electrons emitted by the sun's fiery storms or flares get trapped in earth's magnetic field, producing currents. These currents, when strong, are capable of producing electical disturbances that can affect the earth, Hasan explained.

Countries in high latitudes such as Alaska, Canada, Denmark, Norway, Finland, Sweden and Russia are particularly affected by the occurrence, he said.

The three projects will study the effects of solar maxima on space and the earth, as well as to help estimate precisely how much thermal insulation would be required in spacecraft carrying astronauts. India's first manned space mission is scheduled for 2015.

IIA's space coronagraph is estimated to cost `40 crore to develop. Including other expenses such as for launching the special telescope on a satellite named Aditya in 2013, the entire project cost is estimated at `128 crore, said a spokesperson for Isro. IIA, a government body, is also building the world's biggest solar telescope with a diameter of 2m. The project, estimated to cost `150 crore, is being evaluated by the department of science and technology.

Editor's note:

1 crore = 10 million (rupees)

40 rupees is about one US dollar.

The world's largest telescope now is the McMath-Pierce Solar Telescope in the Kitt Peak National Observatory in Arizona, US, which has a diameter of 1.6m. IIA's third project is a multiple application solar telescope, or MAST, which is being installed in Udaipur in a collaboration with Ahmedabad's Physical Research Laboratory to study the magnetic activity on the sun's surface.

"All the three projects will give a comprehensive picture of activities happening from the sun's surface to atmosphere in small and large scale," Hasan said. "MAST will be functional by next year, Aditya by 2013, and NLST (National Large Solar Telescope—the second project) by 2016."

These studies are expected to help scientists predict eruptions of solar flares and take precautionary measures, said Arnab Rai Choudhuri, an astrophysicist at the Indian Institute of Science.

“It takes two days for the flares to reach the Earth’s atmosphere and we can take precautions such as shutting down electronic equipment on satellites to avoid damage, or declare non-flight zone, particularly in polar regions,” he said.

IIA has proposed to share data from its studies with the International Space Weather Initiative (ISWI), an effort started by countries such as the US, the UK, France and Japan and supported by the United Nations Basic Space Science programme. India is a member.

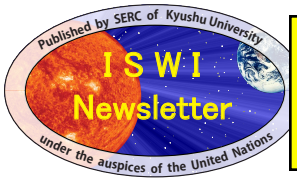
ISWI held its first conference in November.

The connection with ISWI

Several projects to study the sun are in the process of being commissioned, which will be taken by member nations.

Data from these studies will help scientists understand occurrences on the sun and predict their timing, said Nat Gopalswamy, secretary of ISWI and a staff scientist at the National Aeronautics and Space Administration’s (Nasa) Goddard Space Flight Centre.

Separately, scientists from Japan, Taiwan, China, Korea and Australia met in Bangalore last week to form a group to study the sun. “This is the first time that these nations are joining us in major issue bothering us in present times,” said Hasan of IIA, which hosted the meeting. “Earlier in 2005, a bilateral group was formed between India and China and now we have opened up to other nations as well.”



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