

To: ICSU IPY Planning Group, jcel@bas.ac.uk , IPYINPUT@nas.edu
From: Alfred Wong, Professor, Dept of Physics and Astronomy, UCLA and
Member, Polar Radio Science Consortium (PARS-C)
Subject: Proposed Idea for IPY, International Polar Year 2007-2008.
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The use of powerful electromagnetic (EM) waves to explore properties of the lower and upper atmosphere, ionosphere, and magnetosphere especially in the polar region is a research field of world-wide interest. The polar region with its nearly vertical magnetic field lines allows EM waves of a wide range of frequencies to propagate upward from a number of ground-based stations near the polar region to all regions of the atmospheres - which we will name as the Geospace. This space is also rich in free energy sources consisting of field aligned currents, mega-ampere electrojets, energetic particle distributions and auroras. This dynamic region can be best explored with a coordinated international effort among all the powerful ground-based stations, polar-orbiting satellites, radars, lidars and networks of ground-based detectors. Such collaboration is made all the more feasible with the advance of Internet and GPS.

This proposed idea is to invite all the institutions and laboratories to participate in a joint exploration of the earth's environment. Some of the goals are :

1. To investigate the anthropogenic effects such as the increasing use of wireless communication on Geospace.
2. To monitor the free energy sources in Geospace.
3. To study the interactions of EM waves with free energy sources in Geospace.
4. To utilize active probings to obtain comprehensive pictures of the dynamic Geospace in the polar region.
5. To understand the role of Polar-region science in magnetosphere-ionosphere coupling, atmosphere-ionosphere coupling, solar-terrestrial physics, and space weather.

The significant world-wide facilities are : the Heating facility of the European Incoherent Scatter association (EISCAT) near Tromsø, Norway, the Sura facility at Vasilursk, Russia, the Arecibo facility, Puerto Rico, the High Frequency Active Auroral Research Program (HAARP) facility near Gakona, Alaska., the High Power Auroral Stimulation (HIPAS) facility at Two Rivers, Alaska and the VLF facility at Siple Station, Antarctica.

Some of the space-borne detectors are : Fast satellite, the Akebono Satellite, the Cluster Satellites.

We envisage a series of workshops to be sponsored by PARS-C consortium in conjunction with IPY Planning Group and a number of universities at various

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locations e.g. Tromsø, Fairbanks, Puerto-Rico, Los Angeles, Paris, to name a few. We believe that stimulus-response type experiments complement and expand on the common passive observations of geospace phenomena.

Alfred Y. Wong, Professor of Physics and Astronomy, UCLA. email
awong@physics.ucla.edu

tel: 310 825 1642