Highlights for STSP (Solar Terrestrial and Space Physics)

Solar terrestrial and space physics (STSP) sessions address the physics of phenomena ranging from Earth's neutral atmosphere and magnetosphere to the Sun and the outer boundaries of our solar system, where the Sun's solar wind meets the local interstellar medium. A major focus for these sessions is the international program CAWSES (Climate and Weather of the Sun Earth System), which combines research on solar and interplanetary physics with magnetospheric, ionospheric, and atmospheric physics, and with cosmic rays and the solar system's interstellar environment. Observational data are obtained from spacecraft, including Australia's FedSat, and ground-based sources, while the interpretative and theoretical work primarily involves plasma physics. Invited Keynote presentations and contributed talks will be given in five sessions on Monday and Friday. The bulk of the Australian STSP community will be present at the poster session on Thursday. In addition a lunchtime meeting for the STSP Group will be held.

The first STSP session (Monday, 1040-1230) will start with a Keynote review of the CAWSES program by its international coordinator, Professor Sunanda Basu (India & USA). The two subsequent talks will address the neutral atmosphere and ionosphere before the session finishes with a Keynote CAWSES presentation on magnetospheric physics by Professor Janet Kozyra (USA).

The second STSP session on Monday (1400-1540) is focused on space weather inside Earth's magnetosphere, starting with the Ionospheric Prediction Service, continuing with transient ionospheric convection and diagnostics of magnetic reconnection, and finishing with a Keynote presentation by Professor Wendell Horton (USA) on magnetic substorms and relativistic electron injection into the magnetosphere.

The third STSP session on Monday (1620-1800) starts with a Keynote review by Dr Hilary Cane (Australia) of solar flares, coronal mass ejections, radio emissions, and energetic particle acceleration. Two theoretical talks follow on radiation associated with coronal mass ejections, one on solar radio bursts and the second on radiation from where the solar wind interacts with the local interstellar medium. The last talk describes research on auroral activity, associated with solar wind particles interacting with Earth's atmosphere and ionosphere.

The STSP poster session (Thursday afternoon) covers the entire gamut of STSP, from lightning to cosmic rays, with a strong emphasis on plasma physics. Presenters are from

Australian and overseas Universities, the Defence Science and Technology Organisation, Ionospheric Prediction Service, and other institutions. Invited posters on the interests, research foci, and personnel of Australia's primary STSP sites are included.

The first STSP session on Friday (0820-1000) starts with a Keynote presentation by Dr Christopher Chaston (Australia & USA) on particle acceleration in Earth's auroral regions, followed by FedSat observations on auroral current systems. The next two talks address the propagation of electron beams and generation of waves, basic plasma physics relevant to auroral, solar and interplanetary phenomena.

The last STSP session of the Congress (Friday, 1020-1220) focuses on the neutral atmosphere and magnetospheric physics, starting with a Keynote review by Dr

Mark Conde (Australia) of winds in the neutral troposphere. Subsequent talks address tomographic reconstruction of the plasmasphere using GPS and FedSat data, the radiation dose on airplanes due to energetic magnetospheric particles, and field-aligned currents in the ionosphere and magnetosphere.