

4.5.2 External Payloads in Space Science

ESA has bartered access to three NASA-provided external mounting adapters (~1 m² each) on the International Space Station (ISS) for early utilisation before the mounting sites on ESA's Columbus Orbital Facility become available in 2003.

ESA issued the Announcement of Opportunity in December 1996 for using these NASA mounts based on the following principles:

- open access and no mission fees (promotional period);
- selection through peer reviews of the highest-quality proposals in science, applications and space technology.

Thirty-two proposals were selected. Sixteen will validate new technologies using the Technology Exposure Facility, four are from Space Science, three from the Physical Sciences, one concerns Earth Observation and eight are Life Sciences/Exobiology.

Three of the four space science instruments will be combined in the Solar Monitoring Observatory. These three complementary instruments will measure the solar spectral irradiance with unprecedented accuracy across almost the whole spectrum: 17-3000 nm. This range carries 99% of the Sun's energy emission. Apart from the contribution to solar and stellar physics, knowledge of the solar energy flux (and its variations) entering the Earth's atmosphere is of great importance for atmospheric modelling, atmospheric chemistry and climatology. The three instruments are:

- SOVIM: solar variable and irradiance monitor,
- SOLSPEC: solar spectral irradiance measurements,
- SOL-ACES: auto-calibrating Extreme Ultraviolet and Ultraviolet spectrophotometers.

They will be mounted on the ESA-developed Coarse Pointing Device (CPD), with a pointing accuracy of the order of 1° to compensate for ISS motions. The fourth instrument, the Sky Polarisation Observatory, will be accommodated separately.