

Full Solar Rotations Observed by the SOLAR Payload on the ISS in December 2012 and June 2013
*Christian Muller [christian.muller@busoc.be] and the SOLAR operation and science teams,
Belgian Users Support and Operation Centre (B.USOC), Belgian Institute for Space Aeronomy,
Brussels.*

Since March 2008, an optical package measuring the sun spectral irradiance operates in space from the ESA COLUMBUS module of the International Space Station (ISS). Three instruments compose this package: a total solar irradiance instrument SOVIM, a UV-visible-infrared spectrometer: SOLSPEC, and a far UV instrument: SOL-ACES. SOVIM stopped operations due to an electrical problem six months after launch but the two other instruments are still operating and ESA plans on supporting them until 2017. However, the life of the ISS has now been extended to 2020 and if the instruments stay in the current condition, a further extension would be possible.

Due to the specificities of the ISS and mechanical limitation of the SOLAR moving platform, continuous operations are not possible and are made in intervals guaranteeing both solar visibility and minimum of contamination. This excludes arrivals of vehicles at the ISS and maneuvers using chemical propulsion. In December 2012 and June 2013, NASA and the ISS partners approved a specific attitude, called the “SOLAR Attitude”, allowing the bridging of two solar viewing opportunities and thus providing quasi-continuous observations during a full solar rotation. These operations and results already reviewed by the science teams will be presented with a special emphasis on the abnormal minimum of cycle 23. The continuation of these bridging operations and their meaning for space climate studies will also be discussed.