

The End of the ENVISAT Mission

After 10 years in space, the contact to the European environmental satellite ENVISAT was lost on the 8th April 2012 and could not be re-established as yet. On the 9th May 2012, ESA declared the official end of the ENVISAT Mission. This is sad news for the Institute of Environmental Physics (IUP) of the University of Bremen, which has been the scientific lead in one of the ENVISAT instruments, the SCIAMACHY (SCanning Imaging Absorption spectrometer for Atmospheric CHartography). Professor John P. Burrows, director of the institute and “Principal Investigator” of SCIAMACHY, has the following comments with respect to the end of ENVISAT:

„The news about the end of the ENVISAT mission is a large disappointment. Within its 10 years of operation the SCIAMACHY instrument on ENVISAT produced a unique and trail blazing data set. SCIAMACHY was up to its last downlink of data in excellent working condition and was expected to work for several more years. The excellent work of the scientists and engineers, who designed, built and run ENVISAT and SCIAMACHY, needs to be congratulated.

The loss of the data products from SCIAMACHY and the other ENVISAT instruments, however, leaves a large gap in the global observation of key atmospheric constituents and parameters; in particular for the greenhouse gases carbon dioxide and methane and the determination of the vertical profiles of key atmospheric trace gases, aerosols and stratospheric and mesospheric clouds by so-called limb and occultation observations. Unfortunately and in spite of the European nations ratifying international treaties such as the UNECE LTAP, UNFCCC and the Montreal and the Kyoto protocols, these measurements are not foreseen or planned within the EU/EUMETSAT/ESA follow-on program GMES within the next decade. In spite of GMES having an atmospheric monitoring service, the focus of GMES is currently placed on the support of operational services. GMES is of course important, but it has not secured the necessary space segment for global measurements. These have been in part provided by ENVISAT and are needed for atmospheric and climate research in a climate being modified by anthropogenic activity and are identified in the plans of GCOS

<http://gosc.org/ios/GCOS-main-page.htm>, CEOS IGOS

<http://ioc.unesco.org/igospartners/igoshome.htm> and GEOSS

<http://www.earthobservations.org/geoss.shtml> .

Part of the SCIAMACHY nadir measurements (about 40%) will be continued by the spin-off instrument GOME-2 on the ESA/EUMETSAT satellite Metop until at least 2020. However after the sudden and unexpected end of ENVISAT, atmospheric and climate research urgently needs the initiation of replacement missions to minimize the gap in the precise determination of the total amount of the greenhouse gases carbon dioxide and methane and the vertical distribution of key atmospheric parameters in the stratosphere and mesosphere at adequate fit for purpose spatial resolution and temporal sampling. These data are also essential as they provide the evidence base for environmental policymaking as the anthropocene evolves.”