5. Earth Observation Missions

5.1 Introduction

As pointed out in the Introduction (1.0) to this volume, this 32nd report to COSPAR contains several new features. These include this section, which is devoted to Earth Sciences. This innovation reflects the growing maturity of this branch of science and the leading role played by the Agency in advancing work in the area.

This section reviews current activities and plans, starting with the two ERS satellites, whose performances have exceeded all expectations and established precedents for Europe and the rest of the world. Only highlights can be included here but reference is made to ESA publications that provide much more detailed information. Both satellites remain fully operational, with ERS-1 acting as a 'hot' spare in case ERS-2 should fail. Much of the ERS data are being supplied (and used operationally), notably by the meteorological services.

In order to save space, this section does not include descriptions of the various satellite systems that have been (and continue to be) developed in conjunction with Eumetsat. Here, specific reference must be made not only to the operational meteorological geostationary satellite series Meteosat and Meteosat Second Generation (MSG), but also to the planned operational meteorological polar orbiting satellite Metop. All, in their different ways, are trailblazers and it is interesting to note that Metop will include derivatives of two of the instruments currently flying on the ERS satellites, namely a wind scatterometer and an ozone monitoring instrument.

Looking more to the future, the section describes the capabilities of Envisat and current proposals for a series of Earth Explorer research satellites. However, these various activities must be viewed within the context of the Agency's overall strategy for Earth Observation. This recognises that data from Earth Observation satellites are relevant to both the scientific and the applications communities. It identifies applications-oriented Earth Watch missions as a counterpart to the research-oriented Earth Explorer missions, though it is accepted that a hard line cannot be drawn between them from a user's point of view. Both concepts are evolving and will be more extensively described in the next report to COSPAR.

For further information on ESA's Earth observation missions, see http://www.esrin.esa.it/esa/progs/eo.html