

Envisat: Capturing the World

By Naomi Francey, Education Support Officer

If any readers have been to Armagh Planetarium you may have noticed that in our Earth to the Heavens exhibition many of our displays are images taken by the satellite Envisat. Envisat was launched with an Ariane 5 in March 2002 by the European Space Agency (ESA). Its main purpose is for Earth observation, focusing on atmosphere, ocean, land and ice. Envisat contributes greatly to scientific research with its ability to monitor environmental and climatic changes on a global scale. Its orbital altitude is from 780 km to 820 km above the earth surface and takes between one to three days to cover the entire globe.

Envisat has various global and regional objectives. Its global objectives include monitoring of sea surface temperature, atmospheric pressure and temperature. Some of its regional objectives are ship traffic monitoring, agricultural and forest monitoring and coastal processes.

“Envisat has captured many environmental issues around the world”

Envisat ground stations are in Kiruna in Sweden, Fucino in Italy, and Villafrana in Northern Spain. They are also assisted by another ESA satellite, Artemis, which allows communication with Envisat when it is out of view of the ground stations. From these locations downloaded data is taken to the Envisat Flight Operations Control Centre at Darmstadt, Germany.

Envisat is a big satellite with large shiny solar panels and a large radar antenna. It is easily visible to the naked eye if you know where to look. See www.heavens-above.com for details of when you can see it.

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Image Credit: ESA

Figure 1. Envisat image of a phytoplankton bloom in the Baltic Sea

ssues around the world; I have chosen a couple of images to show you some of the work the satellite is involved with. In Figure 1 Envisat has captured a plankton bloom in the Baltic Sea in June 2005. Plankton are microscopic organisms that are very important at the start of the oceanic food chain. Similar to algae, plankton consumes great amounts of oxygen from the water, and can occasionally undergo an explosive population increase called a ‘bloom’, staining the ocean. The bloom, which can affect fish numbers, and some variations of plankton are toxic to fish and humans, so it is important fishermen know of the extent of it.

“Satellite images can determine whether fires in certain locations need monitoring”

Figure 2 shows Portugal and Northern Spain; the white wisps moving across the Atlantic are smoke from fires that devastated this loca-

Image Credit: ESA



Figure 2. Smoke from Iberian fires stretches over the Atlantic

tion in August 2006. Images such as this one contribute to worldwide fire maps which monitor the fires on an annual basis and can determine whether fires in certain locations are going to need sufficient monitoring in the future, particularly with climate change being a major factor. Many more images can be seen on the ESA website such as spectacular sandstorms in the Gulf of Oman, retreating ice shelves in the Ross Sea and eruptions from Mount Etna. It is a great way to see our beautiful planet from a different perspective, Envisat can capture environmental disasters as they happen and provide important data for future prevention methods to be generated.