The JRC support to the Costa Concordia emergency management

**Melissa**
The innovative JRC MIMO radar

MELISSA originates from JRC work on landslide monitoring and is now further developed for maritime surveillance applications. MELISSA can take measurements (in the form of radar images) up to 100 times a second. The interferometric technique applied uses a sequence of two pictures to measure with high accuracy the occurred displacement in every point under monitoring.

MELISSA has accuracy in the range of 1 mm and it does not require to install any reference in the area under monitoring. In addition, it maintains all the classical radar capabilities, such as day and night operability and minimal influence by environmental conditions.

The ship monitoring network

The JRC MELISSA is fully integrated in the Concordia ship monitoring network deployed in the aftermath of the disaster on request of the Italian Civil Protection Department under the coordination of the University of Florence.

- Accelerometers and inclinometers on the board;
- Laser Scanner – scanning the ship in very high resolution, allowing to construct 3D object;
- MIMO MELISSA – JRC radar interferometer;
- On board precise GPS receivers;
- Robotized topographic station – automatic laser theodolite;
- Micro-seismographs measuring the "micro earthquakes”;
- Extensimeter – traditional instrument for monitoring displacements;
- Thermo imaging – measuring the thermal tension and possible oil leakage;
- Radar satellite interferometer (COSMO-SKYMED);
- Multibeam - sonar technology for bathymetry measurements.

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The monitoring operation continues in remote and fully automated mode in order to respond to the request of support from the Italian Authorities until the planned end of the emergency phase.