



## **The use of TRMM-PR rainrate products to verify and calibrate a SEVIRI-based statistical rainfall estimation technique**

**F. Porcú** (1), D. Capacci (1) and F. Prodi (1,2)

(1) University of Ferrara, Dept. of Physics, Ferrara, Italy (porcu@fe.infn.it) (2) ISAC-CNR, Bologna, Italy

A SEVIRI (Spinning Enhanced Visible and Infrared Imager) rainfall estimation technique based on Artificial Neural Networks (ANN) has recently been developed at the University of Ferrara. The algorithm exploits the multispectral capabilities and the increased resolution of the new SEVIRI sensor on board the Meteosat Second Generation satellite. The present version of the algorithm provides rain maps in five rainrate levels, at 5 km of spatial resolution and 15 minutes of time resolution and. was tested and validated over U.K. area and for summer and winter season by considering the Met Office Nimrod radar precipitation maps. Performance were evaluated by calculating the Equitable Threat Score (ETS) and BIAS for rain - no rain classification and correlation coefficient and Heidke Skill Score (HSS) for five classes of precipitation.

The algorithm performances strongly depend on the peculiarity of the training dataset, such as season, climatic regime and latitude: to apply the technique on a selected area is thus highly desirable to train the ANN on this area. In the frame of an EU Community initiative programme INTERREG III B ARCHIMED the focus of the project RiskMed is the Central and Western Mediterranean areas, where a ground radar based precipitation dataset reliable and at high resolution, large enough to train the ANN, is not available. Nevertheless, almost the half of the domain is covered by the TRMM-PR overpasses. The TRMM product 2A25, in this first approach, is therefore used in two way: at first to assess how much the performance are degraded if the U.K. trained algorithm is directly applied over the Western Mediterranean region, at second to assess the possibility to re-calibrate the U.K. trained algorithm by using a limited (few events) PR-based data set.