**Gianandrea Mannarini, PhD**

Scientist  
Fondazione CMCC (Centro Euro-Mediterraneo sui Cambiamenti Climatici)  
Divisione OPA (Ocean Predictions and Applications)  
Lecce, Italy

**Optimal Ship Routing for Crossing the Atlantic**

**Abstract:** The purpose of this work is to develop a numerical model that calculates the efficient and safe routes for a vessel to take across the Atlantic Ocean. Existing software exists to perform this task, but it could be significantly improved by building on the experience gained with the open-source model VISIR-I ([www.visir-model.net](http://www.visir-model.net)) and the oceanographic datasets of the Copernicus Marine Environment Monitoring Service ([http://marine.copernicus.eu/](http://marine.copernicus.eu/)). In particular, the VISIR model has been evolved into a new code in Python and the path optimization is now solved on a non-uniform unstructured grid. The new code will start employing the CMCC CGLORS reanalysis of ocean circulation at ¼ deg, while other relevant environmental fields will be added later on. The new code will be used for achieving the goals of H-2020 project **AtlantOS Task 8.3**, which includes the capacity to compute safe routes optimizing the economic cost of navigation through use of dynamic environmental information.

**Biography:** Gianandrea’s research activity aims to improve Maritime Transportation by means of Decision Support Systems. Together with colleagues of the TESSA and IONIO projects, he designed and implemented VISIR, a ship routing model for safer and more efficient navigation, and presently leads its scientific and operational development. As a model, VISIR’s source code is made publicly available following the guidelines of the Free and Open Source Software. As an operational system, VISIR already has an operational implementation in the Mediterranean Sea.