

A Single Buoy Mooring used by tankers and subsea pipeline that takes oil directly from tanker to a refinery are assumed to stay at risk of accidental oil spills in the port of Taranto. The concomitant environmental impacts can be aggravated by the semi-enclosed character of the Taranto Sea due to a limited water exchange with the open sea.

The oil spill model MEDSLIK-II (freely accessible at <http://medslik-ii.org>) coupled to the high resolution Southern Adriatic Northern Ionian coastal Forecasting System (SANIFS <http://sanifs.cmcc.it>) is used to model hypothetical oil spill scenarios in stochastic mode. 15,000+ oil spills are generated from randomly selected start locations: 50% from the buoy and 50% along the subsea pipeline 2018–2020. Oil spill scenario is based on a real crude oil spill caused by a catastrophic pipeline failure happened in Genoa in April 2016. The model outputs are processed statistically to represent quantitatively (1) timing of the oil drift; (2) hazard maps in probability and mean oil concentration terms at the sea surface and on the coastline; (3) oil mass balance; (4) local-zone contamination assessment.

After evaporation of 48% during the first 8 hours after the accident, the rest of the oil will be transported by currents and wind. While arriving at the coast, the oil will be exposed to multiply reflections from sea walls and concrete wharfs that dominate in the study area. As a result, the oil will be dispersed almost isotropically in the Mar Grande, indicating a rather moderate or small level of concentrations over the minimum threshold values.