

SURVEYS OF THE DISTRIBUTION OF POLLUTION AND ITS DYNAMICS IN
THE 2 TEST AREAS OF THE ADRIATIC AND LIGURIAN SEAS FOR THE
CALIBRATION OF SYNOPTIC DATA FROM SATELLITES

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An Italian research program is underway in the Northern Adriatic Sea and in the Ligurian Sea which has for objective the testing and possible use of the techniques of remote sensing to study the qualitative and relative quantitative conditions of the sea surface pollution and its dynamics.

The synoptic images of temperature (from NOAA 5) of colour (Nimbus G) and of the microwave radiometers and radars (Seasat) are expected to offer an attractive tool in the near future which, supplemented by sea truth measurements and mathematical models may lead to a better understanding and a more precise description of various local and regional scale mechanisms such as pollution dispersion and eventual eutrophication developments. Predictions of future local conditions in connection with weather and climate effects and variations may also be improved with the use of remote sensing.

The program is planned for a few years development. New instruments both of national and foreign laboratories are tested for sampling the ocean from the surface skin to the thermocline. The optical characteristics of different materials and of some physical and chemical parameters are studied. The dynamics of the sea surface is taken into consideration for the pollution dispersal and transport. New algorithms are being studied to improve the methods for correc-

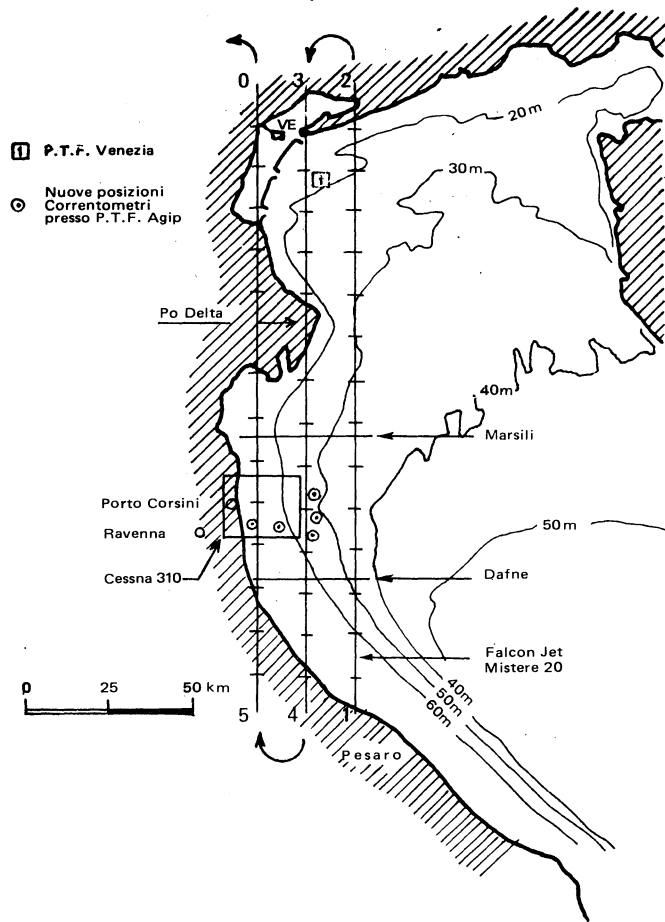


FIGURA 1

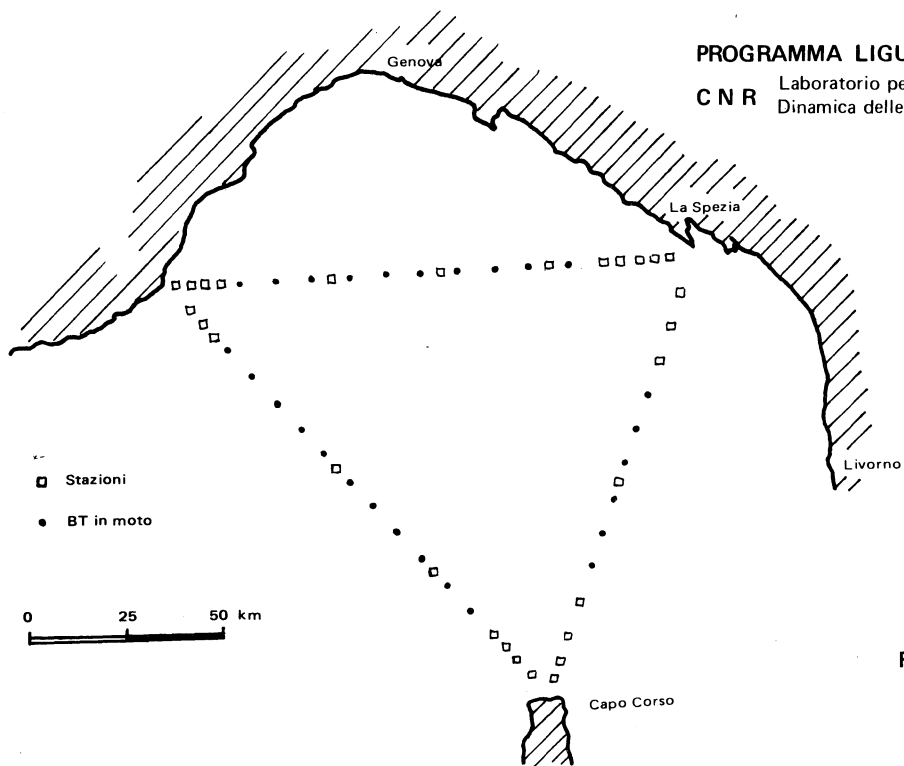


FIGURA 2



IMAGE OF A VORTEX IN
THE ATMOSPHERIC BOUN-
DARY LAYER (SCALE-10
MILES) NORTH OF RIMINI.



IMAGE OF TURBULENCE
AND TRANSPORT OF RA-
DIATING MATTER SOUTH
OF RIMINI (SCALE ~5
MILES).

tion and interpretation of remote sensing data.

A calibration as a pre-launch exercise for Nimbus G was conducted on 25 Sept. 1977 flying an OCS 3, 11000 meters high on a DFLVR Falcon jet plane over the North-West coastal area of the Adriatic Sea, from Venice to Rimini (fig. 1).

The data, which are of good quality, supplemented by a set of sea-truth measurements are under evaluation, in preparation for the post launch test of Nimbus G. This satellite with the CZCS in fact may be operative by the end of 1978.

Three of a series of cruises planned, have been conducted also in the Ligurian Sea. The fourth cruise, in March-April 1978 is expected to make the first actual use of Nimbus G data (post launch), following the experience acquired in the calibration exercise of the OCS (prelaunch).

The "Ligure" project envisages two cruises per year in different months to cover seasonal variations as well as describe the bloom of chlorophyll in March-April.

The final objective is to find out the presence, space distribution and transport of significant antropogenic pollutants dispersed over the sea surface from diffused sources such as the atmosphere, or point sources such as those of pelagic and land origin.

For this purpose air and surface water samples are taken for various kind of analyses. Thermal conditions of the two boundary layers (air and water) are recorded with precise profilers both in the vertical and horizontal mode.

This sea truth survey program in the Ligurian Sea is developing in collaboration with the Laboratoire de Oceanographie Physique of Villefranche, France.

The basic survey is repeated over a triangle from La Spezia to Cape Corse and Capo Mele which can provide the medium boundary conditions for a proper study and for the test of circulation models (fig. 2).