

A reference site for air-sea interactions monitoring in coastal domain

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Due to recent progress in instrumentation, most of oceanic / atmospheric parameters can now be operationally measured with a great accuracy. Satellite products (SST, radiative fluxes or SSS planned to be measured) allow to integrate local measurements into larger scale environment. Despite these improvements, air-sea interactions are not sufficiently documented; errors still remain on sensible and latent heat fluxes and more generally on turbulent heat fluxes. Neither model nor satellite flux fields can be used to close sea surface budgets with enough accuracy and force ocean models. However, air-sea interactions need to be better represented in numerical models because of their capacity to modify the oceanic heat content and the atmospheric boundary layer.

We present here the METEO-FRANCE project of an instrumented site, the OCO reference site, that will be developed in collaboration with the IFREMER, SHOM, CNRS/INSU.... The scientific and operational objectives of this coastal “air-sea” site are:

- constraining the future operational weather forecast model AROME,
- constraining operational ocean and atmospheric numerical models and coupled models (in development),
- improving the determination of air-sea fluxes in the coastal domain and their parameterization in models,
- calibrating and validating new satellite products with « ground truth »,
- monitoring specific air-sea interaction case studies under different weather conditions,
- assessing the variability of oceanic and atmospheric parameters at different time scales,
- developing new instrumental technologies in the field of air-sea interactions.

With this site, different space scales (from local to regional, due to satellite products, campaigns or models) and time scales (from hourly to interannual) will be covered. It should include physical oceanography measurements (SST and temperature gradient, salinity, current, waves), atmospheric parameter measurements (wind, temperature, humidity, rain, pressure, radiative fluxes) as well as latent and sensible heat flux and wind stress monitoring. New technologies like scintillometry will be developed.