



Utö Atmospheric and Marine Research Station - a new Baltic Sea ICOS-site for sea-atmosphere research

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Atmospheric research has developed a concept of focused, multidisciplinary, automated observation platforms with continuous high time resolution observations. This approach containing state-of-the-art equipment has enabled research on physical, chemical and biological processes and seasonal variability and showed up new, previously unknown phenomena. New technical and engineering solutions allowing, such approach is also state-of-the-art in marine research through projects like US Ocean Observatories Initiative (OOI), European Multidisciplinary Seafloor Observatory (EMSO), JERICO-NEXT and Japanese DONET.

At the Baltic Sea, on Island of Utö (59° 46'50N, 21° 22'23E), Finnish Meteorological Institute has observed meteorology since 1881, marine parameters since 1900 and a diversity of atmospheric chemical and physical variables since 1980. Recent years the stations has also been upgraded with aerosol observations, and together with Finnish Environment Institute, on marine observations.

The current and observations under construction at Utö Atmospheric and Marine Research Station (en.ilmatieteenlaitos.fi/uto).

Marine observations: surface waves, ice-cover radar, temperature and salinity and oxygen at different depths, chlorophyll, cyanobacteria, underwater flows, turbidity, pCO₂ and nutrients.

Atmospheric observations: T, WS, WD, visibility, cloud height, boundary layer wind profiles and turbulence, weather and underwater camera, aerosol particle size distributions, aerosol light scattering and absorption, SO₂, NO_x, CO, O₃, CO₂, CH₄, sea-atmosphere CO₂- and heat fluxes.

In our presentation, we present for the first time some 100 years of climate relevant atmospheric and marine observations from Utö.