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# Conventional and actively sensed observations

*Monday, 22 May 2023 13:30 (1 hour)*

This lecture will introduce how observations are an essential part of the data assimilation system.

It will focus on in situ (also called conventional) observations, from surface stations, drifters, aircraft and radiosondes. They are important both for direct use in the data assimilation system and for diagnostics. Radiosonde and surface observations also help to control the biases in the assimilation system. However, they are diverse and they can be complex, so close attention to quality control, observation uncertainty and (in some cases) bias correction is needed to optimise their use. The use of new BUFR format high resolution radiosonde data will also be presented.

The lecture will also introduce the actively sensed satellite observations used for data assimilation at ECMWF: radio occultation data, scatterometer winds, and altimeter wind/significant wave height.

By the end of the lecture the student should be able to:

- understand how in situ and actively sensed observations are used in data assimilation, including bias aspects and observation uncertainty aspects.
- appreciate the diverse and complex range of in situ observations used in modern NWP.
- understand how radio occultation data, scatterometer winds and altimeter data are used in data assimilation.

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