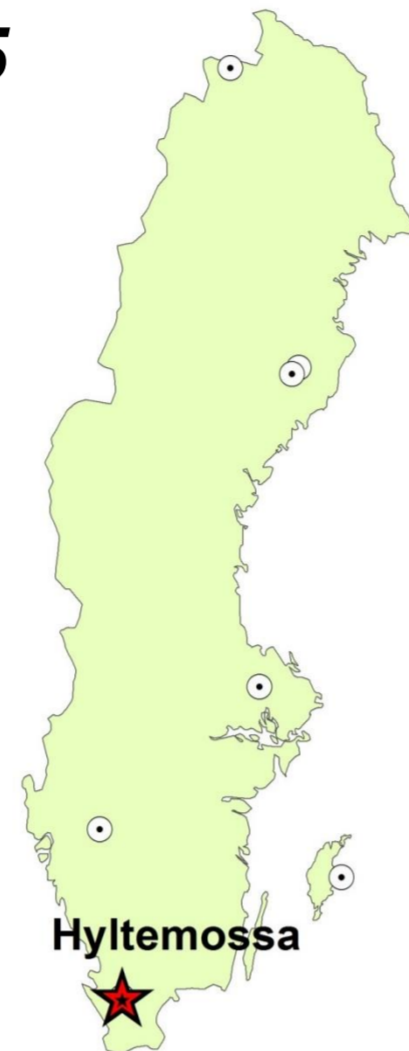


Hyltemossa temperate forest

Michal Heliasz & Tobias Biermann

Hyltemossa (56° 06' N, 13° 25' E, elevation 115 m.a.s.l.) is a combined ecosystem and atmospheric ICOS station, operated by Lund University. The ICOS activities are centered around a 150 m tall tower, located in a 30 years old managed spruce forest.

Hyltemossa is a newly established site in a temperate spruce forest in Skåne, southern Sweden. Installation of the site took place in 2014 and measurements started in January 2015.

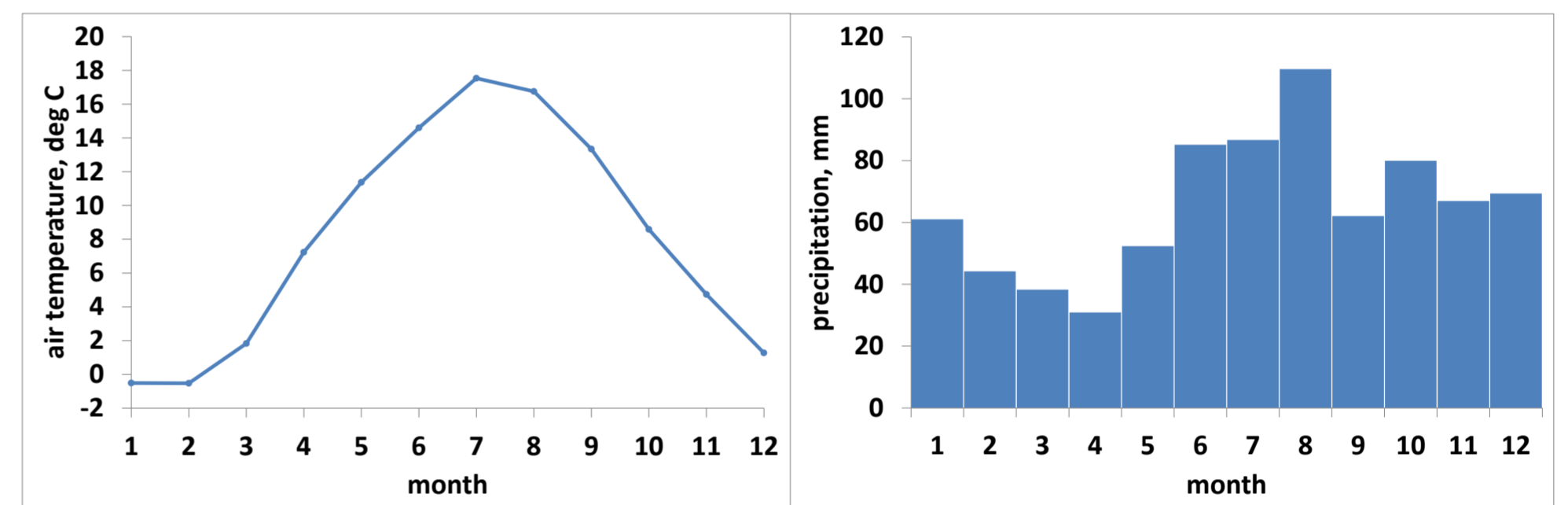


Soils are classified as Podzols and Cambisols after WRB and can contain large amount of stones. Ground vegetation is sparse and mainly consists of a thick moss layer.



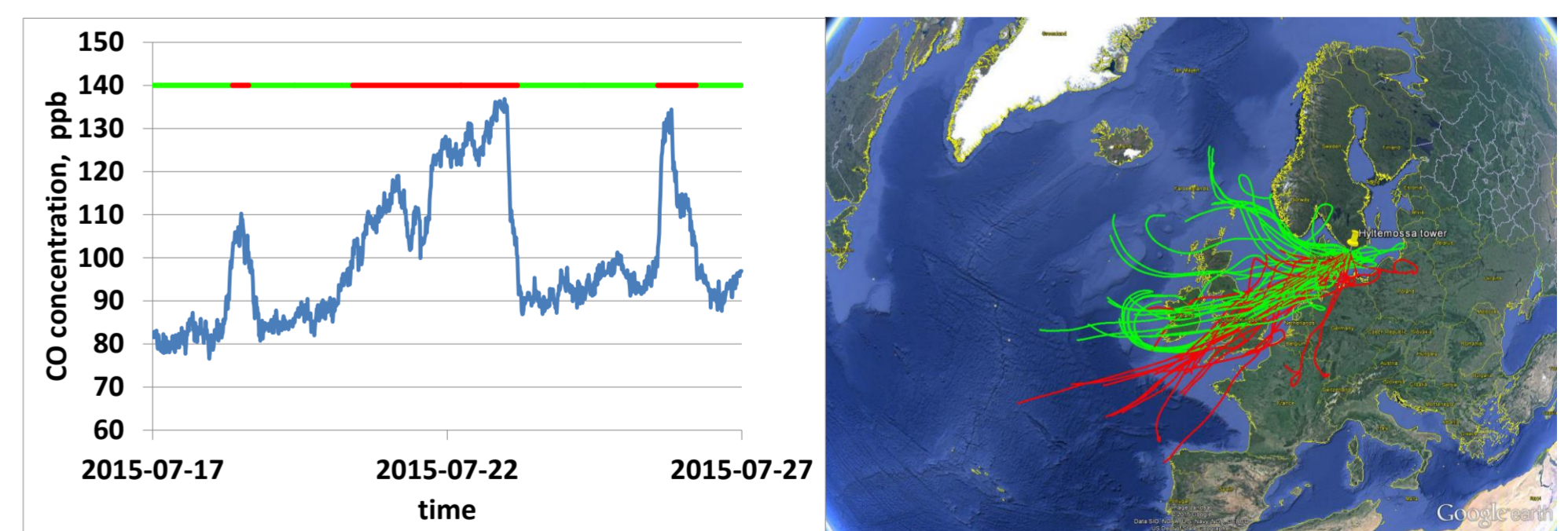
Soil profiles around the main tower, depth 1m.

The site is located in a temperate, maritime climate with monthly average temperatures between 0 °C for January and 17 °C for July. Annual average temperature is about 8 °C. Annual precipitation sums up to approximately 800mm, with a maximum in the summer month.

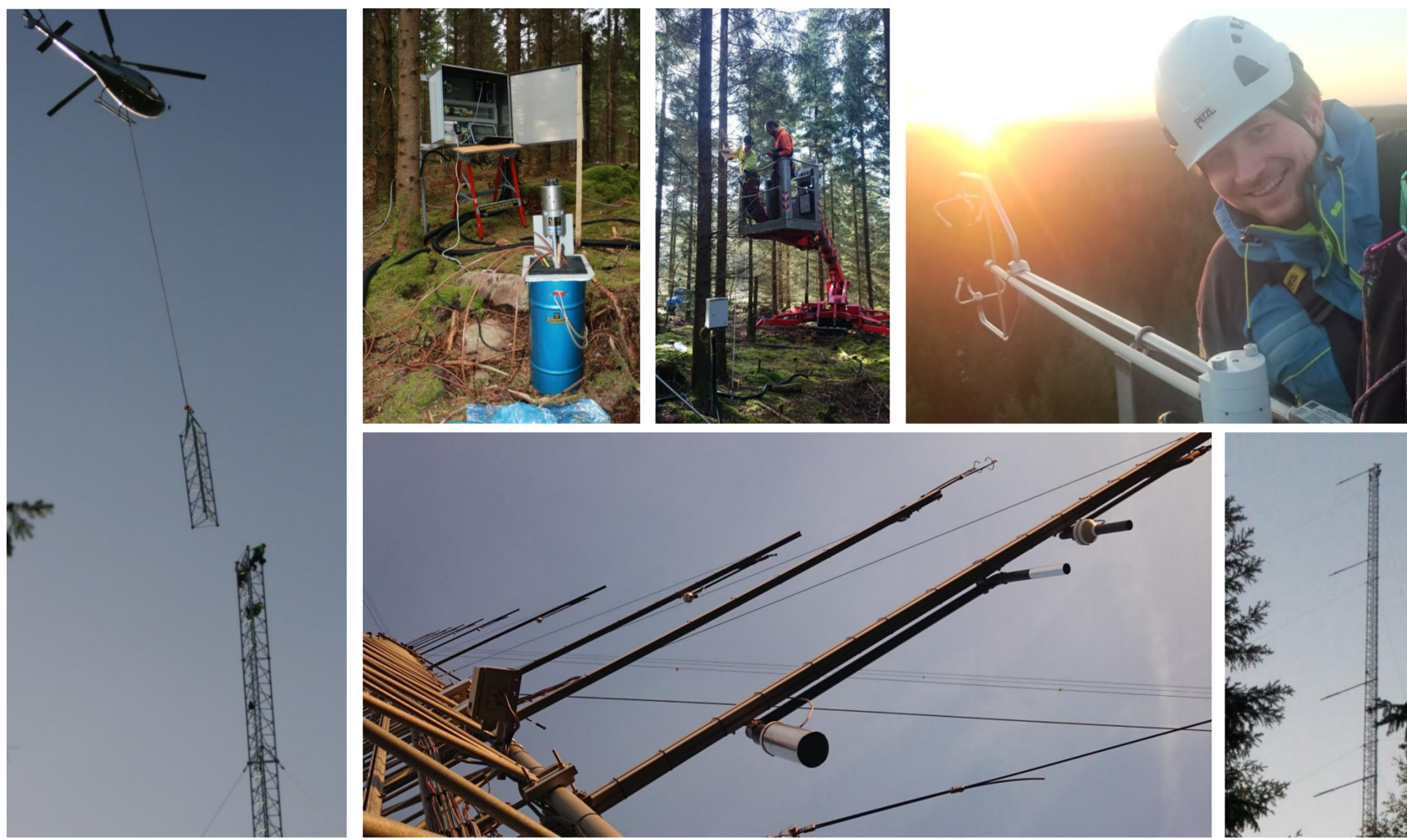


10 year average air temperature and precipitation. Data from Swedish Meteorological and Hydrological Institute.

Below we present an example of carbon monoxide measurements by the atmospheric station. The left graph shows increase in CO concentration during a 10 day period in July 2015. Periods when concentration was below/above 100ppb and are marked green/red, respectively. The right picture shows modelled backward trajectories (72h) of air masses which passed the Hyltemossa tower during this period. Colors of trajectories match periods of measurement from the left graph. In large quantities carbon monoxide is being produced during incomplete combustion and for this reason it is good indicator of air pollution, in our case air masses from the southern direction.



Left: CO concentration for 10 days in July 2015. Right: 72h backward trajectories of air masses modelled by HYSPLIT trajectory model (NOAA). Green and red colors represent the same time period in both graphs.



Left: Installation of the tower. Top left to right: soil thermometer calibration, tree thermometer installation, work on the flux system. Bottom : the profile system.

The tower is surrounded by productive spruce forest estimated to grow 34 m during 100 years, with a 50 year management turnover rate. The site was clear-cut in 1982, after a storm damage, and subsequently replanted with 3300 trees per hectare in 1983. The forest was cleaned in 1998 and 2005. Additionally it was thinned in 2009 and 2013/2015. At present the stand is on average 19 m tall and holds around 190 m³ wood per hectare (excluding branches, stumps and roots).



Left: Hyltemossa forest, position of the tower marked by the yellow star. Right: View from the tower incl. the flux system