

# An Ideal Link



On May 12, 1926, the Norwegian explorer Roald Amundsen (the first man to reach the South Pole, in 1911), Umberto Nobile, General of the Italian Royal Air Force, the American manufacturer John Ellsworth and their crew carried out the first proven overflight of the North Pole. The expedition was performed using a semi-rigid airship named Norge (the first N class semi-rigid airship designed by Umberto Nobile - before 1926 flight named N-1). Amundsen and Nobile explained that the Norge trip was to observe the uncharted sea between the Pole and Alaska where some thought land was. At the time they believed Robert Edwin Peary had already reached the pole. So, the expedition team included only a meteorologist. Nobile started planning a new expedition with the purpose of using airship capabilities for scientific observations in the Arctic (and in some extent solve the little controversy with Amundsen to who deserved greater credit for the 1926 expedition). Unfortunately, the poor support by the Italian Government prevented him to realize airship N-5 (which was larger and had three times the lifting capacity of N-1), his preferred design for the Arctic expedition. With the assistance of private backers and the City of Milan he built N-4 to which was given the name Italia.

Nobile planned 5 flights for the expedition, each starting from and returning to Ny-Ålesund (Kings Bay) and exploring different areas of the Arctic. The 16 expedition team include the Swedish meteorologist Finn Malmgren, the Italian physicist Aldo Pontremoli, the Czech physicist František Běhounek, the Italian hydrographer Alfredo Viglieri. The first flight departed from Ny-Ålesund (Kings Bay) on May 11, 1928, but turned back after only 8 hours due to problems with icing and control system. The second left on May 15 and gathered valuable meteorological, magnetic and geographic data in a 2,500mile (4,000km) flight to the hitherto uncharted Nicholas II Land and back. The third flight started on May 23, 1928, and reached the North Pole at 12:24 am on May 24, 1928 with the assistance of strong tailwinds. Nobile had prepared a winch, inflatable raft, and survival packs (very providentially as it turns out) with the intention of lowering some of the scientists onto the ice, but the worsening weather

made this impossible. The 1928 Nobile exploration plan was the first attempt to carry out systematic scientific observations on large areas of the Arctic. So, the airship mast, still standing today in Ny-Ålesund, represents, also visually, an ideal link with present scientific activities and with the CCTower Integrated Project

Site where the CCTower will be installed is opposite to the Nobile mast respect to the village and is a compromise between logistic and scientific constraints. From the Scientific point of view, flatness of the surface around the platform, relative position with respect to relevant orographic elements village, and prevailing winds, distance from the sea, were the considered features. The platform will be oriented along the prevailing wind direction, with the shorter side in front to the wind. Near the platform will be built a little hut to host computers, acquisition systems, and offer possibility for some flexibility in installation and maintenance. Being the hut very near the platform it will be confused in the platform cone from a dynamical point of view. At the same time, the semi-space to South (SE- S-SW) will remain free to allow good measurements of surface properties.

The CCTower platform is a modular structure, composed by 17 modules (each module is 1.4 x 1.8 m; H =1.8 m), so that in the future an extension of 50 m height can be considered. With respect to power supply and data acquisition patch boxes will be assembled every three floors to provide power supply and data connection with the hut through RJ45 sockets and 9 pin connectors. The devices in the HUT at the base of the platform. System will be built in such a way to separate electrically each measurement so that a possible failure in one measurement will not affect the others.

CCTower will be connected to the Italian station with an optical fiber, to allow real time control and monitoring of measurements from Dirigibile Italia and/or Italy, .

