

# The British Antarctic Survey's new Halley VI station

Steve Colwell

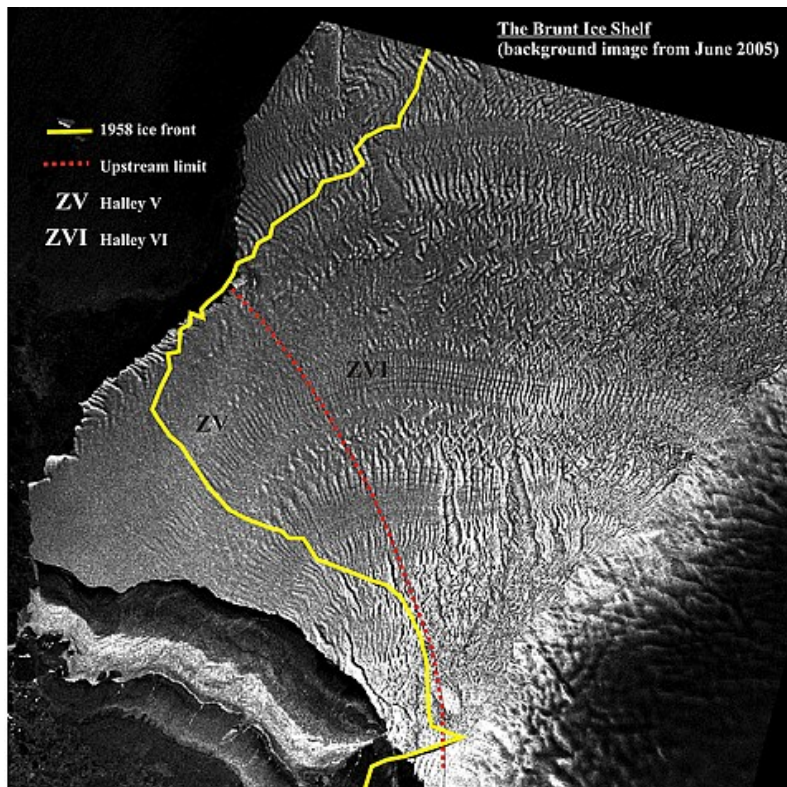
The first station at Halley was established by the Royal Society in 1956 and was used to conduct research into meteorology, glaciology, seismology, radio astronomy, and geospace science for the International Geophysical Year (IGY). After the IGY ended the station was handed over to the British Antarctic Survey who have maintained a permanent presence ever since, while continuing to conduct many of the original studies uninterrupted.

There have been five Halley stations during its history, details of these stations can be found at: [http://www.antarctica.ac.uk/living\\_and\\_working/research\\_stations/halley/halleyvi/?page\\_id=11](http://www.antarctica.ac.uk/living_and_working/research_stations/halley/halleyvi/?page_id=11)

Halley is built on the Brunt Ice Shelf, a floating area of ice that is flowing off the Antarctic Plateau some 50km south of the station's current location. As the ice flows off the mainland the buildings move with it - each year the station drifts north-west by around half a kilometre. As the ice shelf is pushed further and further from the coast it is put under increasing strain by the motion of the tides until eventually a large section breaks off to form an iceberg.

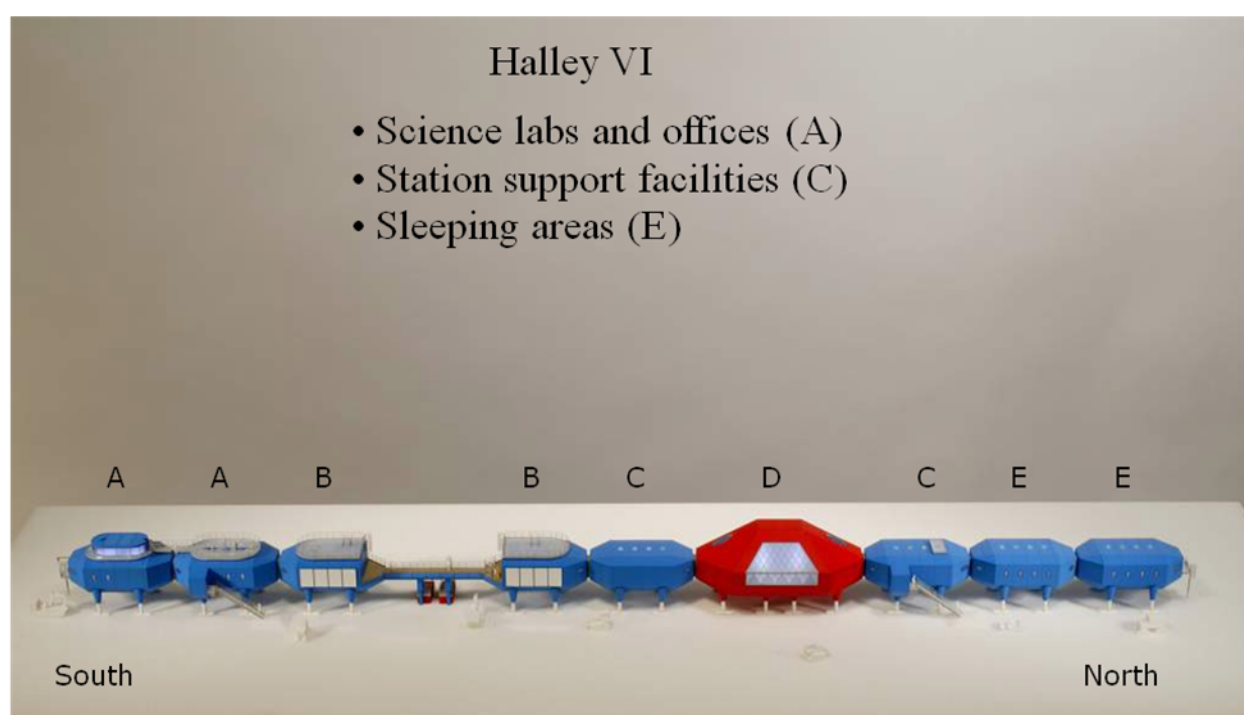
During the 50 years that Halley has been on the Brunt Ice Shelf, several major calving events have been observed. Each new station has been built further inland to compensate, but Halley V's greater success has led to it drifting further than any of the previous stations. BAS glaciologists studying the ice shelf's motion have forecast that the next significant calving event could occur south of the location of Halley V. Although these events typically take several years to break off completely, BAS made the decision to relocate further inland well

before any event is likely to occur.



Opposite is a satellite image of the Brunt Ice Shelf taken in 2005. The yellow line indicates the location of the edge of the shelf shortly after the first Halley station was constructed. The red dashed line marks the furthest back that the ice shelf is likely to break back to if a calving event does occur.

The design of Halley VI combines the benefits of the jackable and ski-based buildings currently in use at Halley V. The station is to be made up of individual modules, which are connected together by short, flexible corridors. The modules are kept above the snow surface using hydraulic legs mounted on skis. As well as keeping the buildings above the rising snow level the new design will allow the station to be periodically relocated across distances of many kilometres. If the station must be moved the individual modules are designed to be separated, towed across the ice shelf by bulldozer, then reconnected again at the new site. This makes it possible for the station to remain a safe distance from the edge of the ice shelf.



Automatic weather stations have been operated at both the Halley V and Halley VI sites for the past 3 years and a comparison of the two datasets will be shown also details will be given of the meteorological equipment that will be installed at the Halley VI site this next Antarctic season.