

Subject: Scholes cabin 5: South Thule

22 January 2010 0039 UTM 58.7640 S 28.9758 E

Dear Stirling,

We saw land today, for the first time since leaving Cape Town. It was the island of South Thule, the southernmost of an arc of volcanic islands called the South Sandwich islands. I don't know why they are called that, and I don't know where the North Sandwich islands are either. I do know that Thule was the Viking's name for Greenland, and that is quite fitting. If anything, South Thule is even more forbidding than Greenland. It was discovered in 1775 by Captain Cook. I don't know if any country claims it as a territory - a bit pointless, since nobody lives there and there is not much to claim except perhaps exclusive access to the fishing around the island. That would be hard to enforce, though.

The new rules on 'Exclusive Economic Zones' is that they extend a certain distance (I think it is 300 km, but maybe it is nautical miles) from the edge of the continental shelf, not the edge of the shore. That would hardly help here, since the islands rise so steeply from the ocean floor. They are a great example of the volcanoes that form along the subducting rim of a crustal plate. As you know, the surface of the whole earth is covered by gigantic plates of rock, which move (very slowly) relative to one another - what we call continental drift. The ones under the continents are thicker and mostly made of a slightly different type of rock than the ones under the ocean. The land rocks are dominated by silica and aluminium - things like granite and its relatives. Under the ocean the crust is much thinner, and is mostly basalt. Anyway, what we have here is a plate (the Scotia plate) that links the southern tip of South America to the Antarctic Peninsula, but first takes a big, curving detour to the east. So you can think of the South Sandwich islands as the tips of the Andes, under the sea!

When one oceanic plate pulls apart from another, the result is a mid-oceanic ridge. When one rides over another, a trench forms, and the underneath one gets pushed down into the molten magma of the mantle - that is what subduction means. In the process, volcanoes form along the rim of the upper one. All the South Sandwich Islands are still active volcanoes, some more recently than others. There was quite a big undersea earthquake here only three weeks ago.

We passed at a distance of perhaps 30 km. South Thule is wreathed in clouds most of the time, so I did not get a really clear look. South Thule is actually three islands, two of which are quite large (maybe 10 km across, and over 1000 m high), and the third is small. The big ones are crescent-shaped, because they are opposite sides of a big undersea crater, rather like the island of Santorini, which you have visited. They are also very steep-sided, like Santorini, but the resemblance ends there! South Thule is

covered in snow and ice, with no vegetation at all except perhaps some lichens. Birds nest on the cliffs, but there are few nice beaches for penguins.

Nevertheless, we have had Chinstrap penguins swimming around us the last two times we stopped to do a CTD, even though we were hundreds of kilometres out to sea.

The two islands form a perfect circular harbour in-between, and at various times I think South Thule did support whaling stations in the summertime. During the winter, the Antarctic pack-ice reaches this far north and would clog the harbour. On the charts in the bridge there is marked a 'refuge' and even an 'Old Lighthouse'.

Love,

Dad