

Subject: Scholes Cabin 5 (P): Coordinates and conventions

24 January 2010 0642 UTM -54.1448, -36.4107

Dear Stirling,

You will notice that the geographical coordinates in the header to this email are written differently. Instead of 54.1448 S 36.4107 W, they're -54.1448, -36.4107. I did this at Tom Roach's suggestion, because then you can cut-and-paste them directly into Google Earth. It makes good sense anyway, because there is less room for confusion than with the South and West convention. The instruments in my lab report the latitude and longitude as negative numbers for the southern and western hemispheres anyway, and I have been putting in the S and W by hand, (and sometimes getting it wrong!).

You remember that famous story about the Mars lander that crashed because the one set of engineers were working in the metric system, and the others in yards and inches? Well, we have something similar going on here. We have three different ways of reporting longitude and latitude on board! The navigators on the bridge do it the old-fashioned way, in degrees, minutes and seconds. So they would write our current location as 54° 8' 41" S 36° 24' 39" W in their logbook. We also have a data system on board, with its own GPS, that reports our location on computer screens in the labs and the lounge, in degrees and decimal minutes: 54.8688S 037.24642W. The instruments in my lab have yet another GPS, which is set to report as decimal degrees, with the convention that locations south of the equator get a negative sign for latitude, and locations west of 0 degrees (the 'Greenwich Meridian') get a negative longitude. It does not really make sense to have three versions, it is just history and habit. It causes problems, so we should all use the decimal degrees convention (naturally!).

You will also notice that I always write the time as HHMM UTM (where HH stands for the hour using the 24-hour clock, with a leading zero if before 10, and MM stands for minutes). The UTM is the time zone I am using. It stands for 'Universal Time Meridian'. A meridian is a line of longitude: in other words, an imaginary line going from the north pole to the south pole around the curvature of the earth. UTM is the same as Greenwich Mean Time (GMT), which is what most people call it, even here on the ship. I learned to call it UTM because that is what the space agencies use. Since they are not British, I think they were making some point about Greenwich not being the centre of the universe!

Do you remember the line on the ground at Greenwich? Of course, it could have been put anywhere, but the Royal Astronomer chose to put it right through the middle of his observatory, and that is where it stayed. There was some grumbling, with the French thinking it should go through Paris, and the Germans arguing for Berlin, but in the end it seems the British won.

When we do work for NASA, no matter where we are in the world, we report in UTM, and so do the satellites. That is much smarter than having a babble of different time zones, especially if they jump forward and backward for daylight saving! The instruments in my lab are all set to UTM, which makes good sense because our transect from Cape Town to Antarctica and back more-or-less follows the 0 degree meridian. But the ship decides its own time! So for several days they were on South African time (based on 30 degrees east) and I would get to meals two hours late! Now we are still on UTM, even though we are just over two hours later than UTM according to the sun - so 'sunset' occurs around midnight, and 'sunrise' around 0400.

We are just offshore Cumberland Bay, South Georgia. The scenery is spectacular. We go ashore later this morning, and I will write about that later.

Love,

Dad