

Space Rainbows

Measuring Atmospheric Waves and Tides in Antarctic Airglow

Anna Clark

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600km

Thermosphere

100km

Mesosphere

55km

Stratosphere

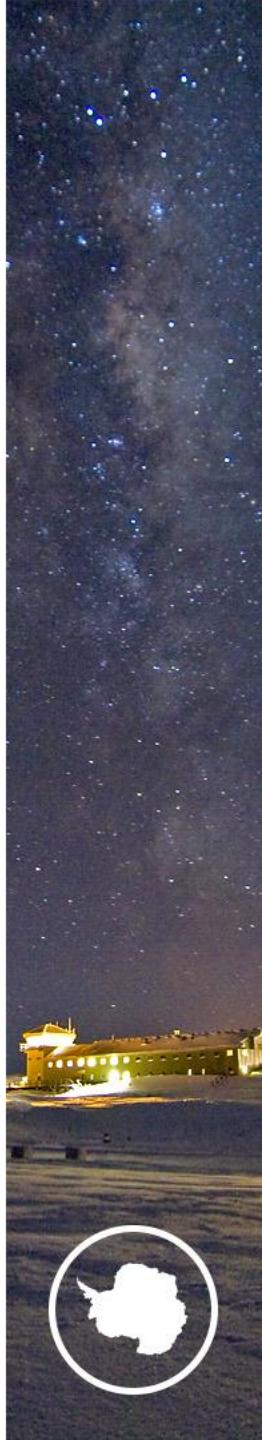
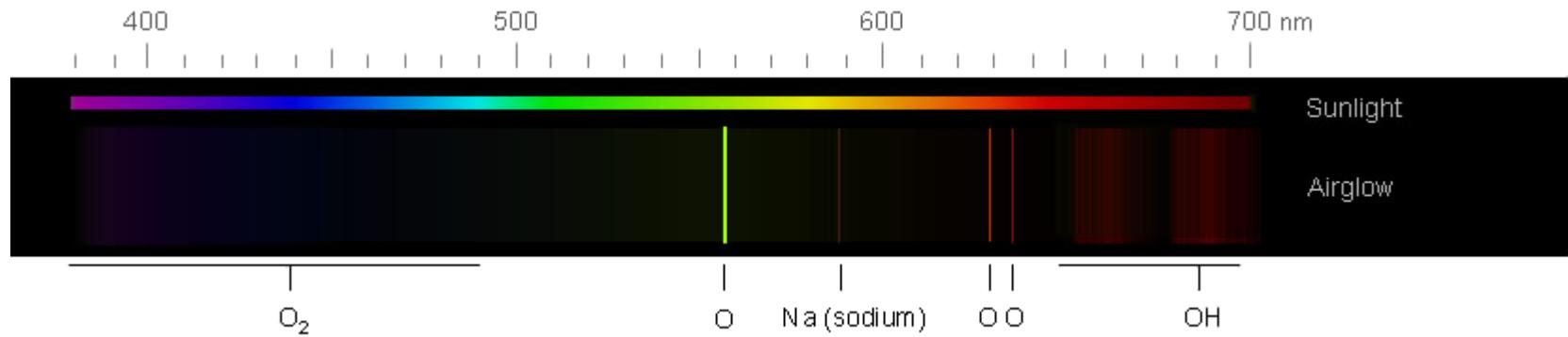
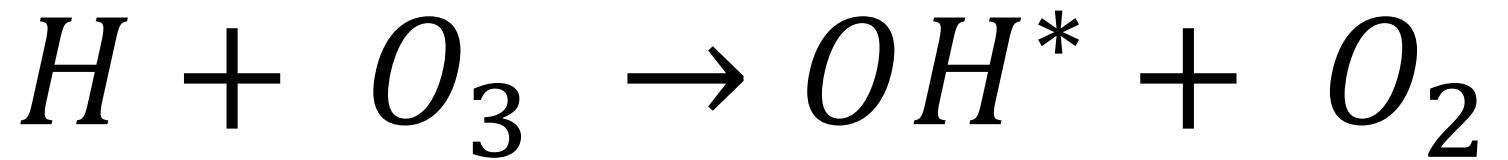
10km

Troposphere





NASA/JSC/ESRS



Les Cowley

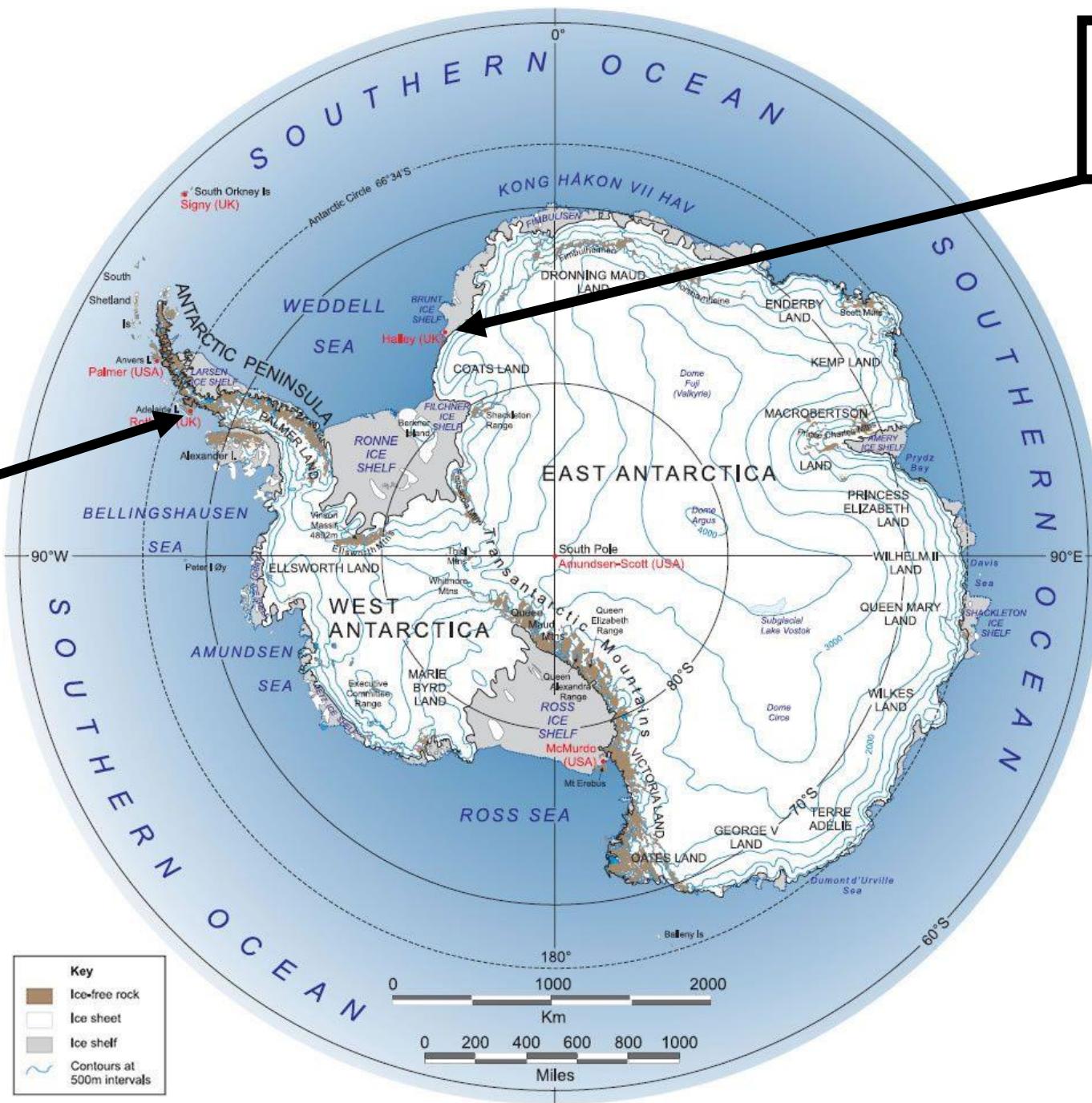


Miguel Claro



Halley
75°S, 26°W

Rothera
67°S, 68°W



LIMA



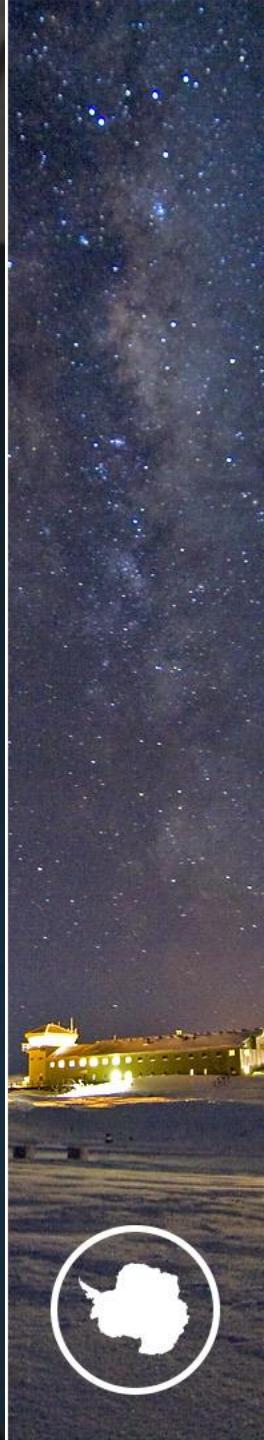
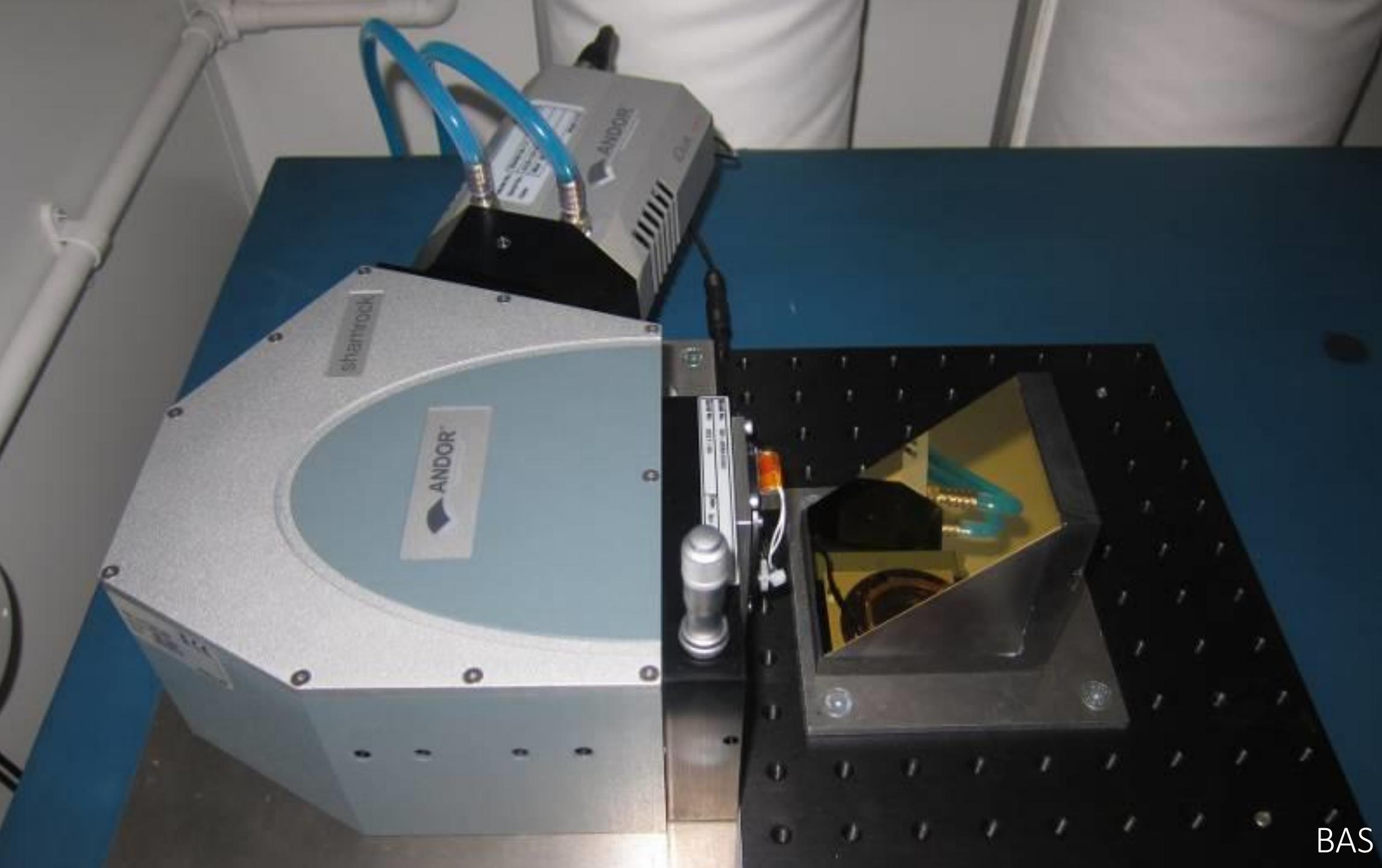


NASA/MODIS



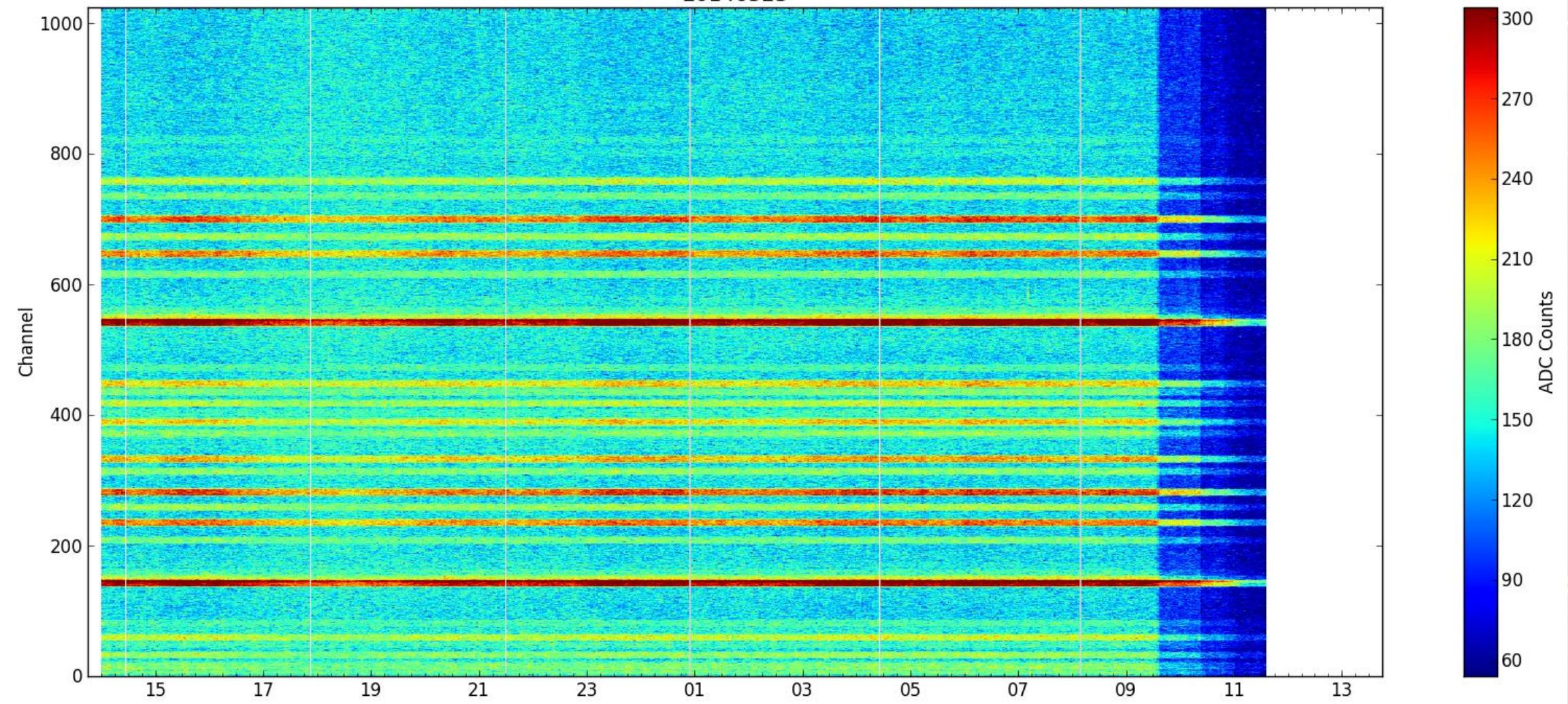


BAS



BAS

Spectrogram (Background corrected)
20140523



Measured intensity

Total population

Energy of the initial state

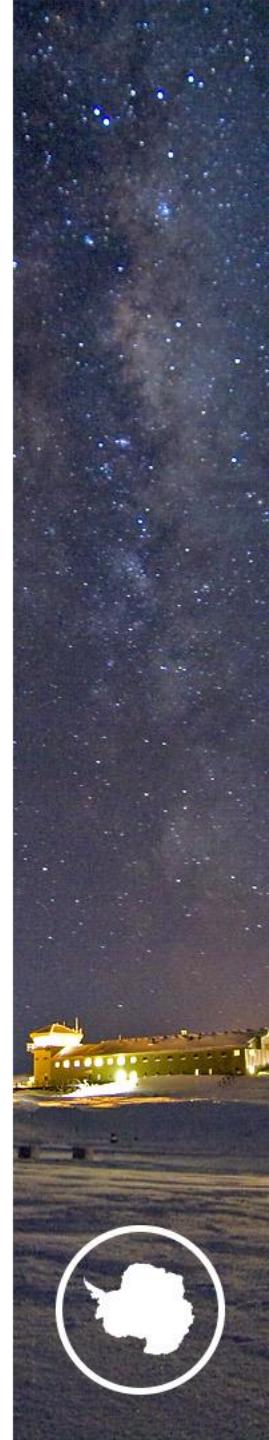
$$I_J = S_J N_0 \cdot v^3 e^{-\frac{\varepsilon_J}{kT}}$$

Line strength

Frequency

Boltzmann's constant

Temperature



Measured intensity

$$\ln \frac{y_J^I}{S_J} = \frac{m}{T} \cdot \frac{\epsilon_J}{k} + \ln N_0$$

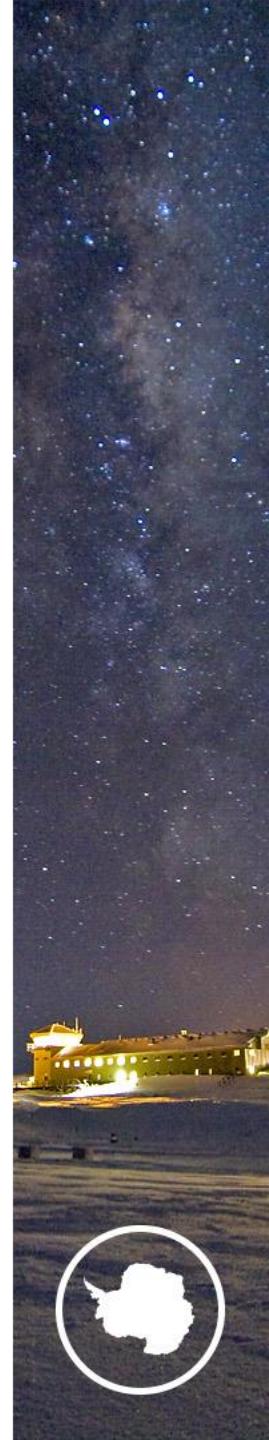
Line strength

Energy of the initial state

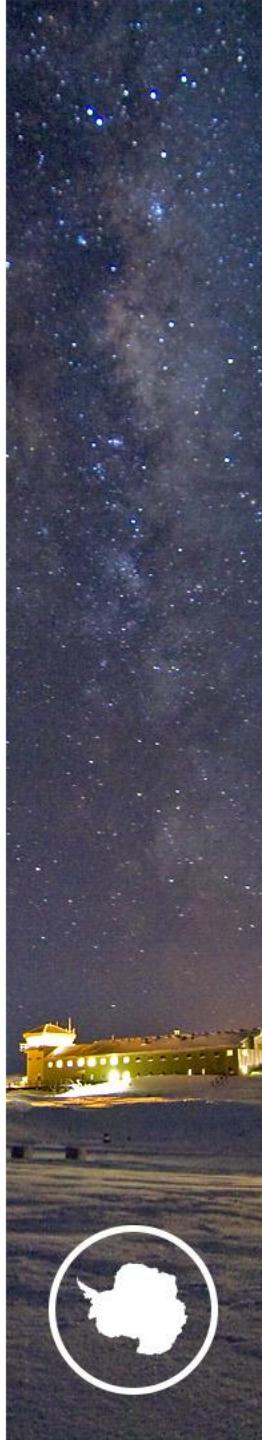
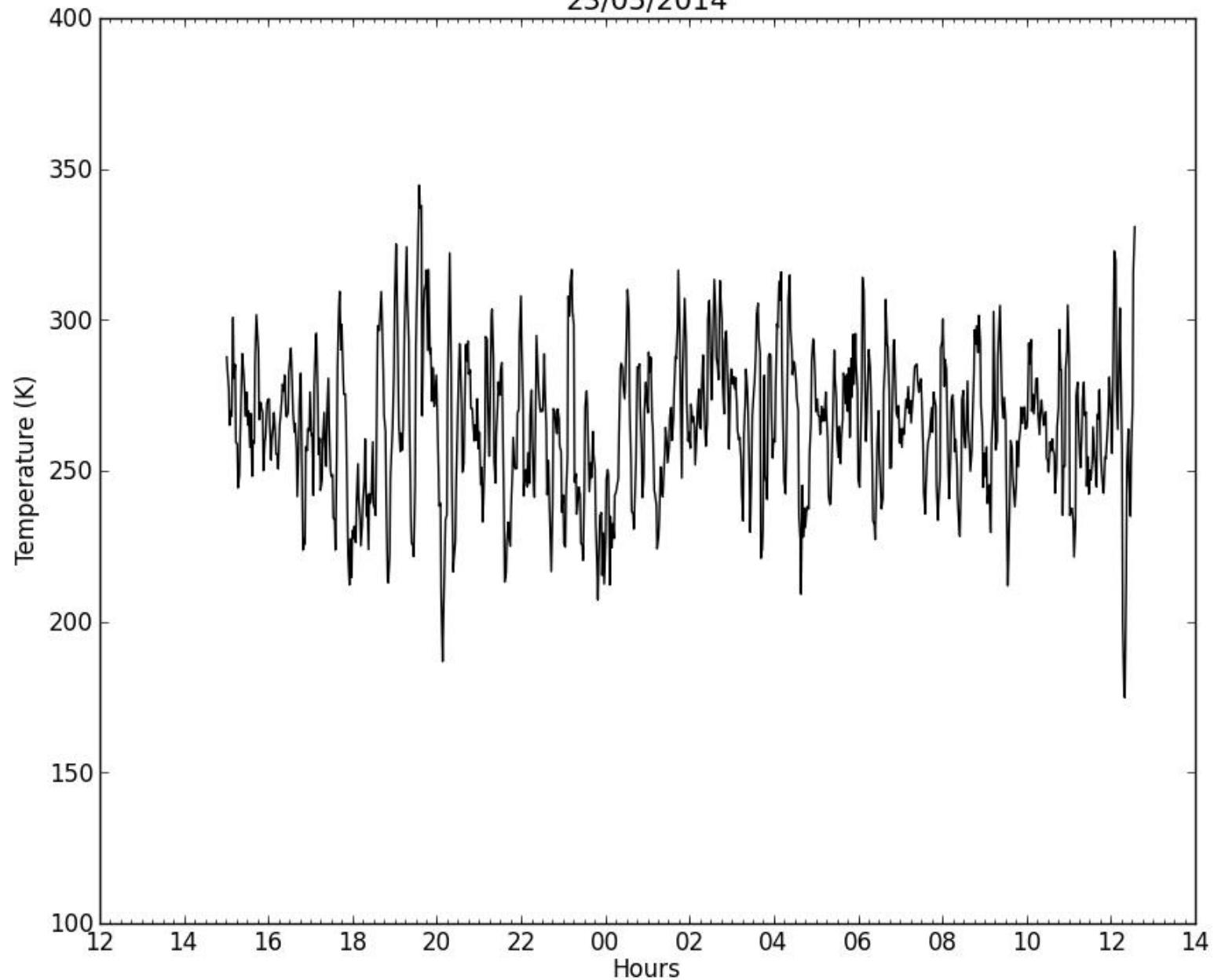
Total population

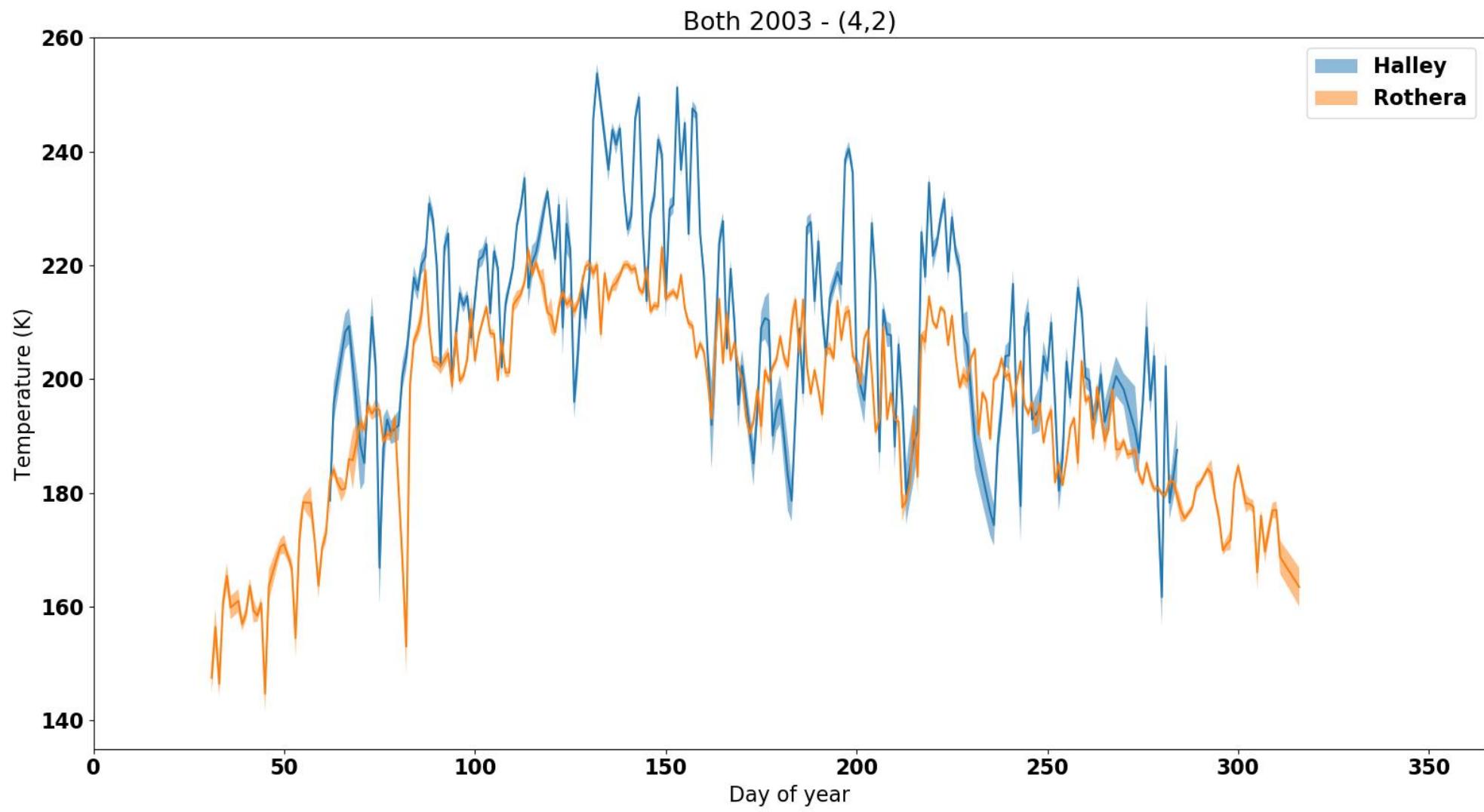
Temperature

Boltzmann's constant

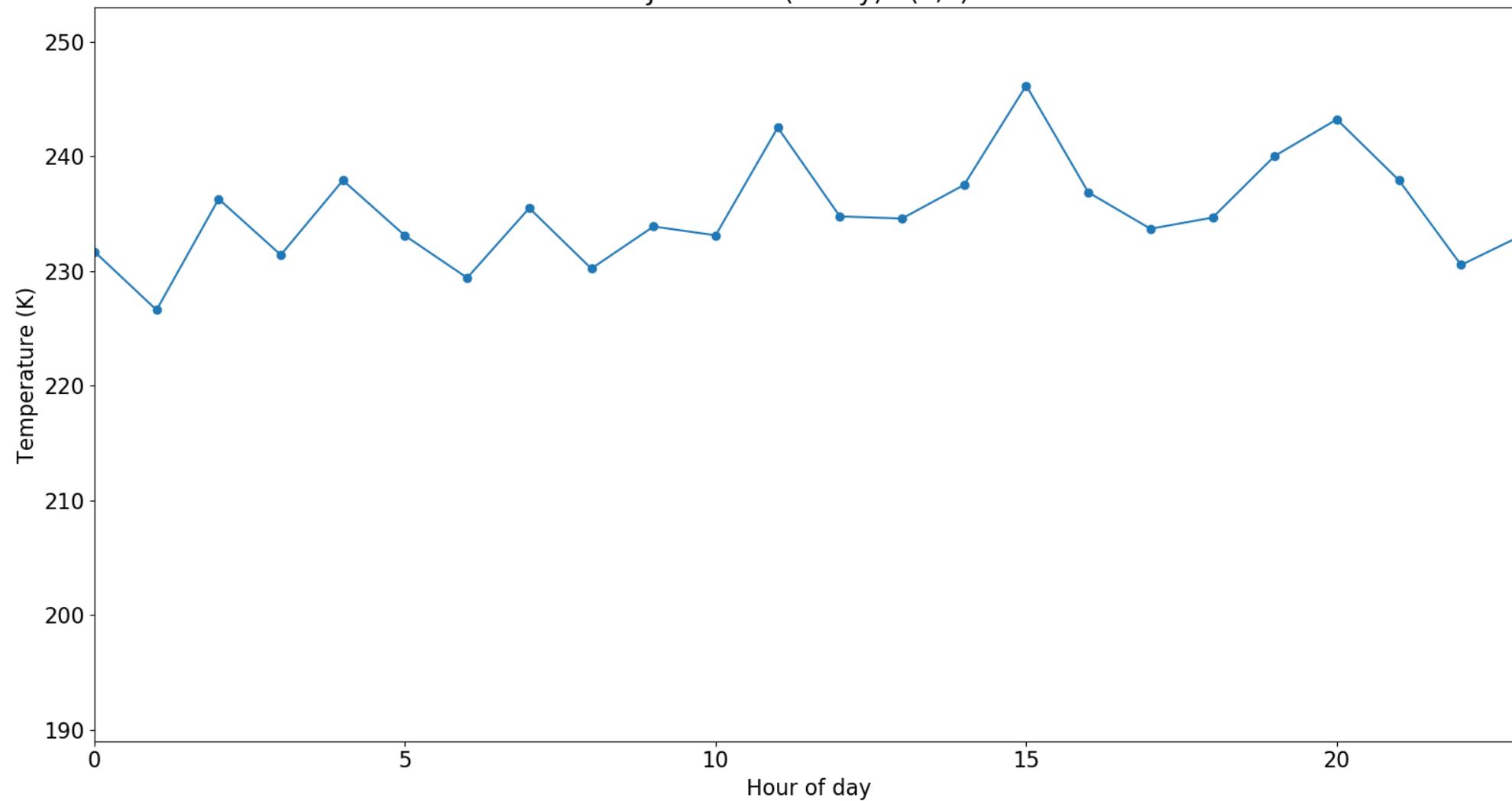


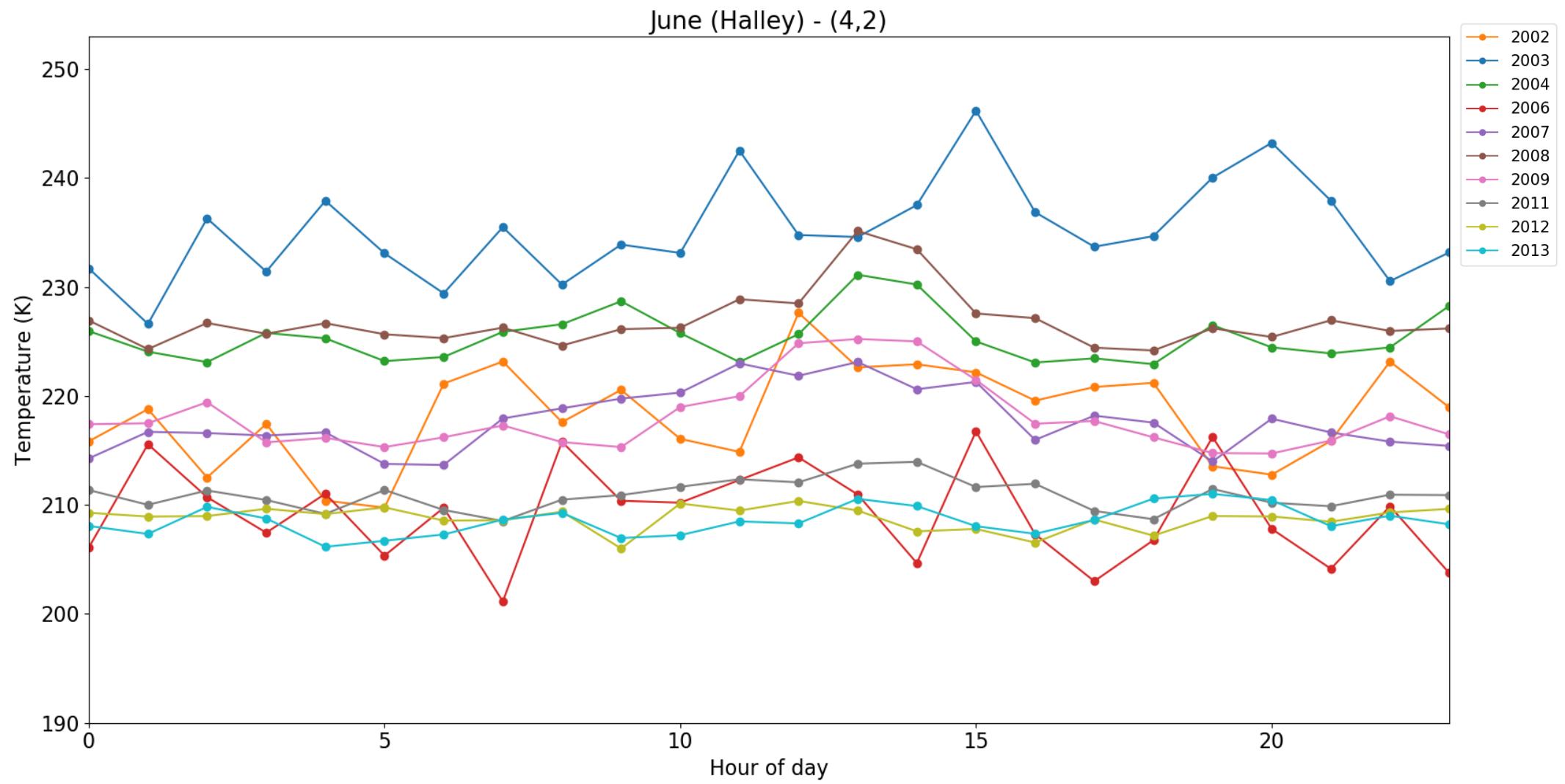
OH(31)Temperature
23/05/2014

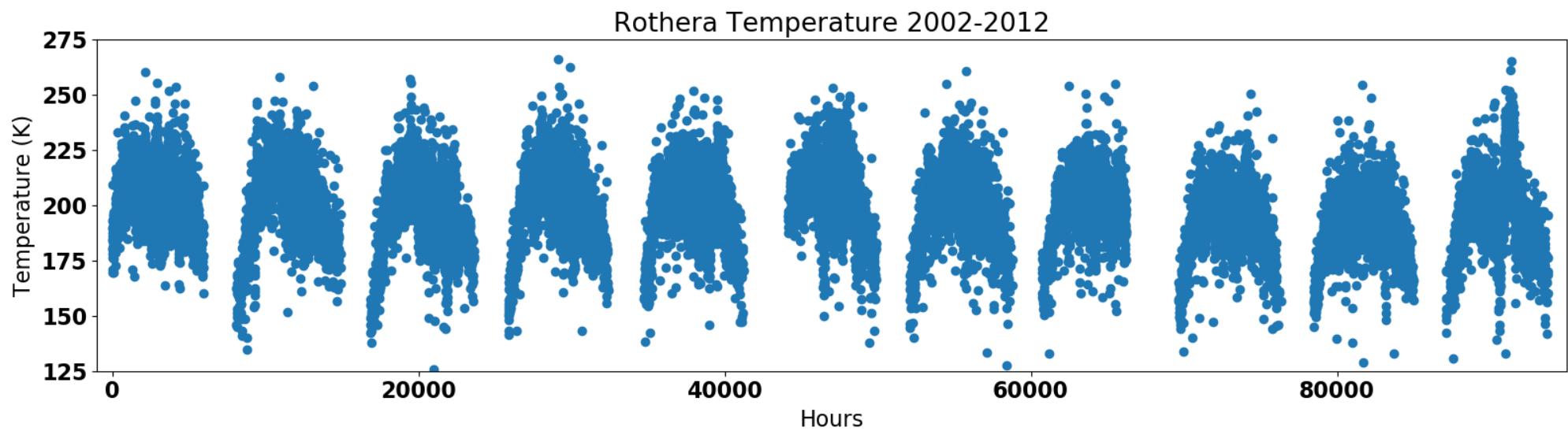




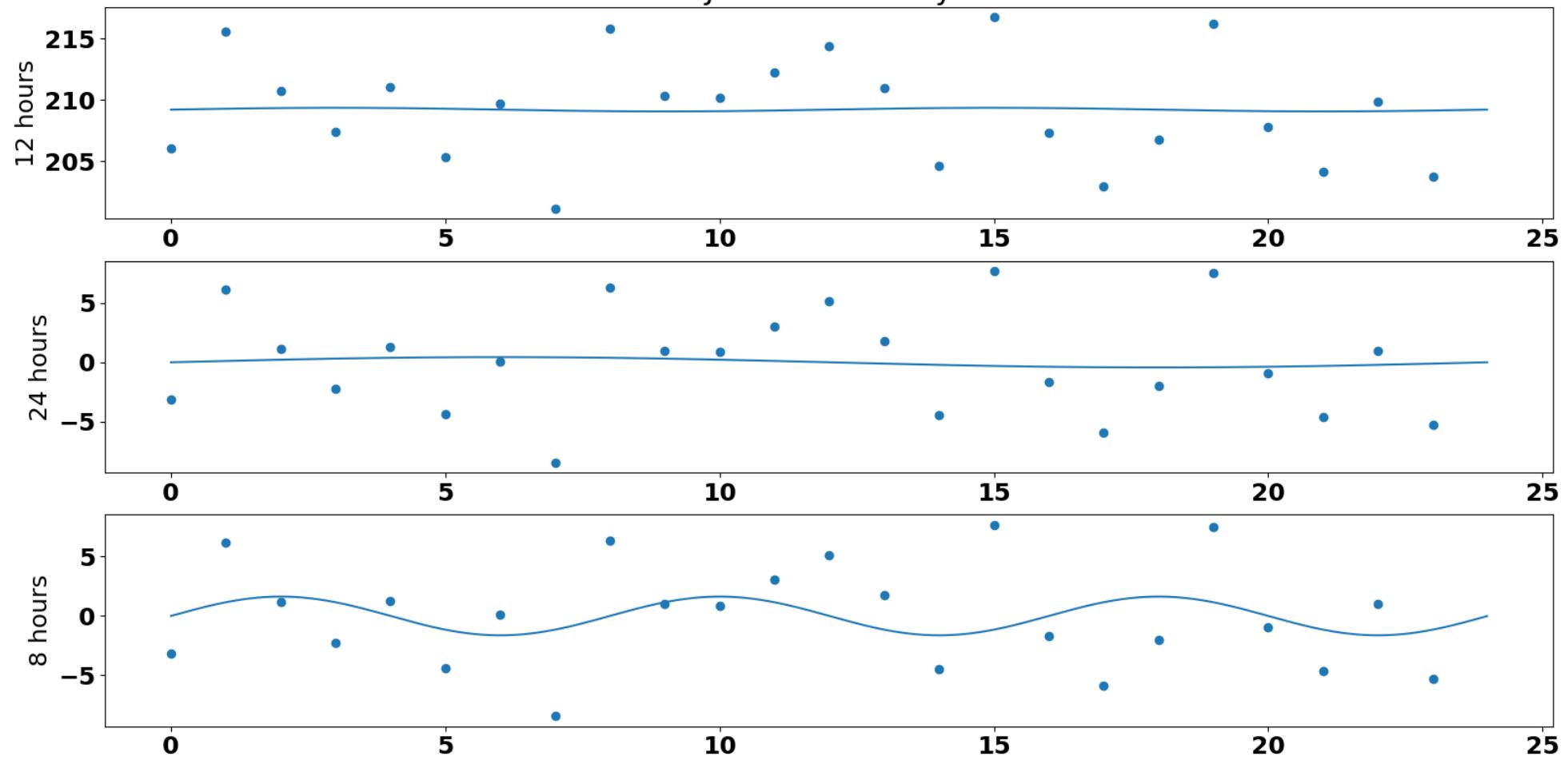
June 2003 (Halley) - (4,2)







June 2013 Halley





**British
Antarctic Survey**

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