

Astronomy Talk 9th April 2019

Reflection, Refraction & Excitation: The Hunt for Atmospheric Optical Effects

This talk was given by Mary McIntyre. Mary started by briefly covering the phenomena of refraction, diffraction, reflection, dispersion and excitation. The rest of the talk gave us illustrations of these.

Items covered included rainbows, moonbows, the belt of Venus, coronal/iridescent clouds close to the Sun, glories (with the Brocken spectre), and spectra showing in aircraft vapour trails.

We then went to ice crystal phenomena. Crystals can be very variable in shape and orientation, giving us many different phenomena. Mary showed us many of these: 22 degree halo, upper and lower tangent arcs, circumscribed oval halos, Sun pillars, parhelia aka Sun dogs with a lot of mythology, moon dogs, Parry arcs, circumzenithal arcs, Kern arcs, Parry arcs, supralateral arcs, 46 degree haloes, circumhorizon arcs for which the Sun must be above 58 degrees, and parhelic circles whose size depends on the Sun's altitude. Whew! All these are visible from the UK.

Mary then asked if she could extend the talk for another 15 minutes to cover nacreous clouds in the stratosphere, noctilucent clouds in the mesosphere and finally aurorae. The extra pictures and information were much appreciated.