

TEACHERS INSTRUCTIONS FOR 'READING RAIN RADARS' WORKSHOP

Background

This workshop aims to introduce students to the idea of using radars to look at the weather. A network of weather radars up and down the country tracks weather systems as they move across the UK. These brightly coloured radar images brighten up daily TV forecasts, showing everything from light drizzle to torrential rain.

The Chilbolton Observatory in Hampshire houses pioneering weather radars, used by researchers to hone the techniques that bring the latest images to our screens. One of the most sophisticated high-frequency radars on the site, the 94 GHz cloud radar, collects detailed data from clouds and rain as they pass overhead. This data builds up into colour-coded images that feature everything from clouds of ice particles to clouds of insects.

The Equipment

- **A set of information about weather radars.** This explains the colour scale used in the radar images and what weather radars measure.
- **A set of information about different types of clouds.** Some background information explaining how clouds form, and what their names mean.
- **A set of descriptions of features identified by the radar.** Each sheet includes a named weather feature detected by the radar eg stratocumulus cloud, frontal rain, insects. The text describes the feature, such as what height it appears at, how strong a radar signal it returns, what colour and shape the image is likely to be and why. Using these clues, the students should be able to match the descriptions with the real radar images.
- **A set of images from the radar showing these features.** Each radar image matches up with one of the features described in the text.
- **A set of 24 hour radar scans.** These typical scans show the weather at Chilbolton during February 2002, and include many of the weather features described in the text clues.

The Task

In the first part of the workshop, students are invited to match a description of a weather feature such as a type of cloud or rainfall with the actual radar image of it. They are given clues, such as what height it appears at and what colour and shape the radar image is likely to be and why. The students are also given strategies for eliminating the easier images before moving on to the more difficult ones.

Once the students have got their 'eye in', they can try to pick out some of the features they now recognise from the real 24 hour radar scans and to describe the weather on that day. These are exactly the same images used by researchers to analyse weather patterns over Chilbolton - the students are now able to read radar images!

Feedback

You might like to compare the radar images of different types of cloud with photographic images (many can be found on http://www.weather-photography.com/Clouds/photo_gallery.html). Cirrus clouds for example, appear wispy and delicate in the sky, but return very strong, brightly-coloured radar signals. Stratocumulus, on the other hand are low-lying, heavy banks of cloud that return a very small radar signal. This comparison can emphasise how radar meteorologists see our everyday weather with very different eyes to the rest of us.