

Weather Radar - The Next Generation.

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Weather radar has been in existence for over twenty years, and the general format is familiar to many people who work in the water industry. Radar is used to target precipitation droplets, and (after a complicated series of mathematical transformations) produces a snapshot of current precipitation patterns over a given area. In essence, weather radar shows where it is actually raining, and how heavy that rain actually is. Because the system is highly automated, images of precipitation are available every fifteen minutes. In general, the resolution of each pixel is 5 km square, but it is possible to increase the resolution to 2 km pixels. Using images at 15 minute intervals, it is possible to generate real time animation, to give an idea of how precipitation bands are moving and developing.

However, there are two main shortcomings in the current system. Firstly, the system only shows actual images (a snapshot of what is actually occurring). Secondly, there is no differentiation between different types of precipitation. All precipitation rates given on weather radar assume that the precipitation is rain. In reality, precipitation could be sleet, snow, hail or freezing rain.

In order to address these problems, the Met. Office has set up the NIMROD project. This project is concerned with NOWCASTING (forecasts up to six hours ahead). NIMROD takes in data from weather radar, but also other sources, such as very high resolution computer models of the atmosphere. The output from NIMROD gives short term forecasts of precipitation location, intensity and precipitation type (sleet, hail etc.). Examples of these forecasts will be shown at the presentation.

NIMROD products will be available on the Met. Office MIST system (a PC software package that can run under Windows using standard modems). Further information on this, or anything given in this presentation can be obtained from:

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Question Gary Edwards Northumbrian Water

We have access to the MIST systems but the drawback is that you can only look at what is happening or what is going to happen. You cannot have a look at what has happened

Answer

There are developments underway at present to allow retrieval.

Current MIST runs on any IBM PC. MIST was designed to enable the user to download current weather radar data it was designed to run in real time and has no archive features.

The next version will include these

Question Bob Sargent Scottish Environment Protection Agency

What will the coverage be for these new systems?

Answer

The next generation techniques are available for anywhere that has current system coverage.

Question Nick Martin Thames Water

You have mentioned 5 km and that 2 km data might be better what is the difference ?

Answer

The 5 km data is down graded so the systems can handle it. 2 km gives better resolution but is not available at present due to the data volumes. Ways are being investigated to make it available as there is perceived to be a need.

Question Dave Walters Virtual Worlds

The rest of the world is increasingly using more and more sophisticated radar's, particularly Japan with laser guided radar etc. These can deliver data much finer than 2 km, are you still using C band ? and is it not getting a bit old ?

Answer

Yes we would like to use these newer systems but we need collaborative partners, without funding we cannot upgrade. It is largely a question of finance.