

Working Group 3

Report of the working group on meteorological visualisation applications

Visualisation techniques for high volume satellite radiances

- The data under discussion is primarily from orbiting satellites. It was noted that it is not always the case that an entire orbit's data is stored together - it may be in separate parts. The data is stored as point values (lat/long/values vectors).
- It was suggested that a 'gridding' approach should be used to transform the data into an image-like structure, so that standard operations (e.g. matrix) can be applied. A well-researched meteorological approach should be used to guide the gridding procedure.
- Such data can then be stored, either permanently or temporarily, in a 'tiled' multi-resolution (both spatially and temporally) form. This can be costly to build, maybe too costly for operational use, but fine for research purposes.
- This data can store references to the raw data, so the user can always get back to that if desired.

Generating navigable content-rich web output

- The most desirable features for web output are that it should be possible for the user to animate, pan and zoom the data. Hyperlinks are also desired. Level of detail should also be adjustable (referred to as 'decluttering'). This could be done either automatically, or manually by the user.
- The main problem is that we need a standard way of producing such data.
- Several options were discussed. Of them, WebCGM, VRML and X3D were considered to not be useful, mainly due to lack of maintenance/development.
- MPEG4 is powerful as a data format using a scene-graph description of the data and may therefore be good for decluttering, but the application that 'runs' such a file may not do so in the desired way. For example, an MPEG4 file may be seen simply as a movie by some applications.
- The use of SVG was discussed at length, as noted below.

Use of SVG

- SVG is able to fulfil all of the requirements for web content.
- Support for SVG is uncertain at present. Although there is a lot of development work being done on SVG and it became a standard last year, the position of influential companies such as Microsoft and Macromedia is unclear. It may or may not become a standard component of web browsers.

There is also the issue of some users not being able or willing to download plug-ins for their existing web browser.

- However, Acrobat version 5.1 now has embedded SVG support and SVG is becoming available on mobile phones. Mozilla comes with an option to compile it with SVG support.
- SVG components can be embedded in SVG, giving rise to a hierarchical scene graph.
- One advantage of SVG is that Google can, theoretically, search the embedded text. This is not currently done, but may be in the future.
- The issue of a legal case of patent on plug-in technology was raised.
- It was noted that although some institutions are being asked for more web content, some are unable to provide too much 'added-value' data on the web.
- Although a 'raw' ASCII SVG file can be large, there is a standard zipped format that is closer in size to binary files.

Use of XML

- When storing data in XML format (on which SVG is based), the number of decimal places used can be adjusted for an accuracy/file size trade-off.
- Looking more generally at XML, it was stated that the WMO is looking into XML for describing data, but say that there is no point in using XML in order to simply replace old data formats - there must be a real benefit from it. There is a prototype Eumetnet project, EMMA, which uses XML for transferring messages.
- It was suggested that an incremental approach may be best, replacing current formats with XML only when needed.