

The HYDALP project - a Scottish perspective

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Introduction

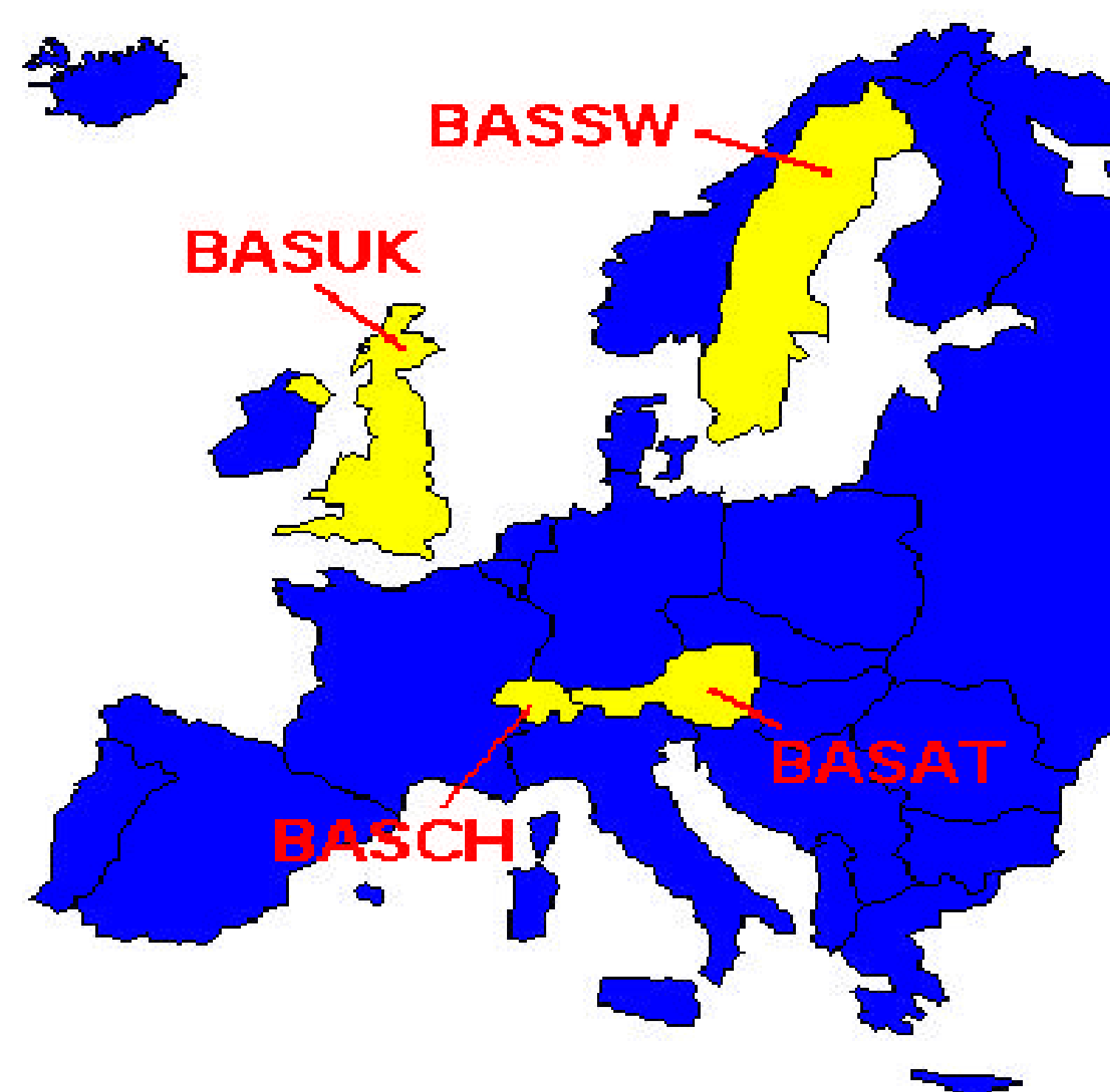
The HYDALP project is using Earth Observation (EO) data to provide input for the hydrological models SRM and HBV.

It is believed that the use of EO data will improve the accuracy of the model predictions, particularly in years when predictions would otherwise be poor.

The models are being tested within four basins in Europe, using EO data collected over a number of years.

The project is being continuously documented via the World Wide Web (WWW).

A demonstration of the project results, and a simplified version of an 'SRM-like' model will be also made available via this medium.



Basins where HYDALP models will be tested

Earth Observation data and HYDALP

Earth Observation provides a source of data for assessing selected biophysical characteristics over large areas, such as river catchments, that would be impractical to measure by other means.

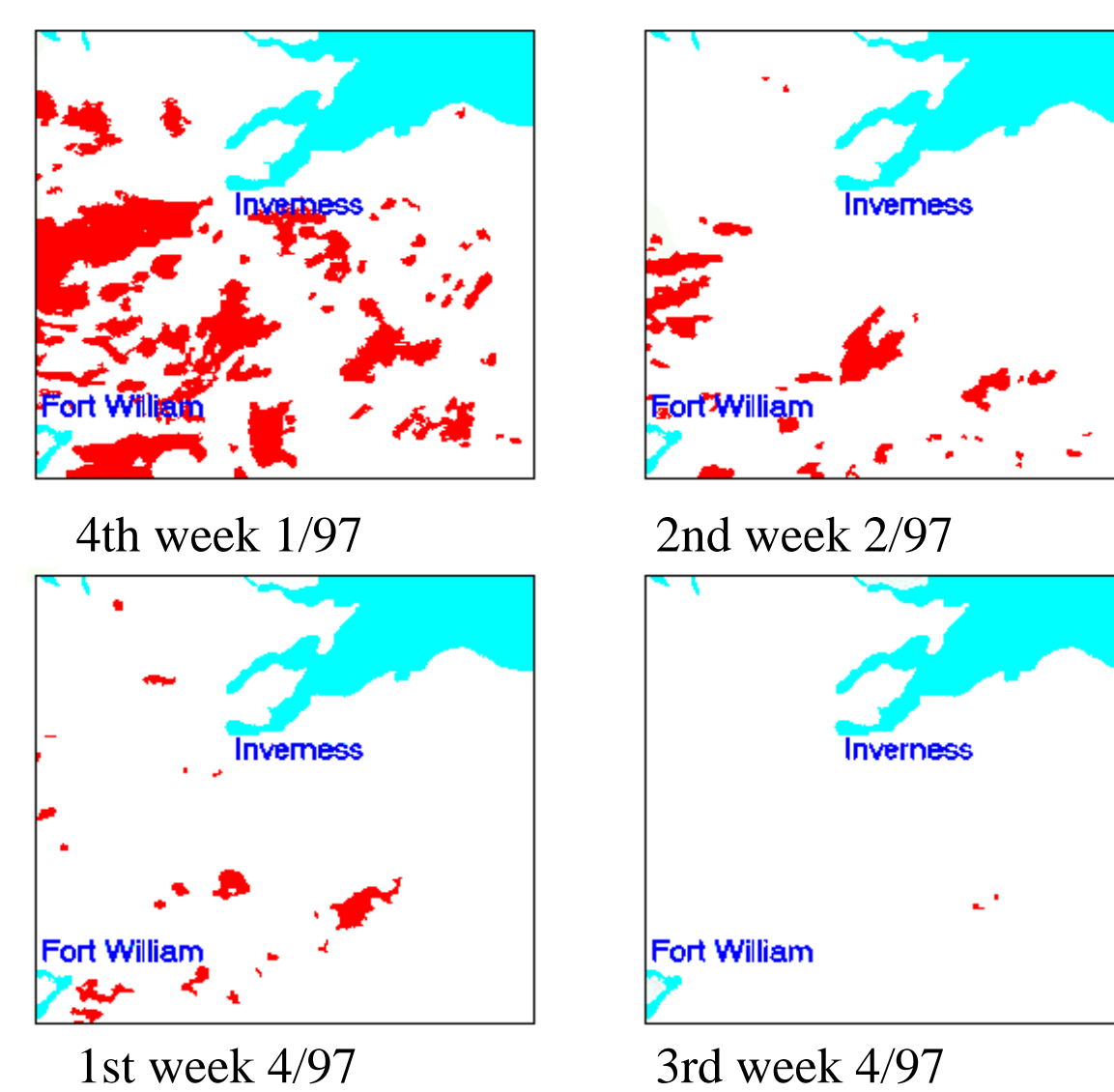
The HYDALP project is using EO data to provide the following information

- land cover classification
- snow covered area
- and, possibly, snow type.

Assessment of snow covered area

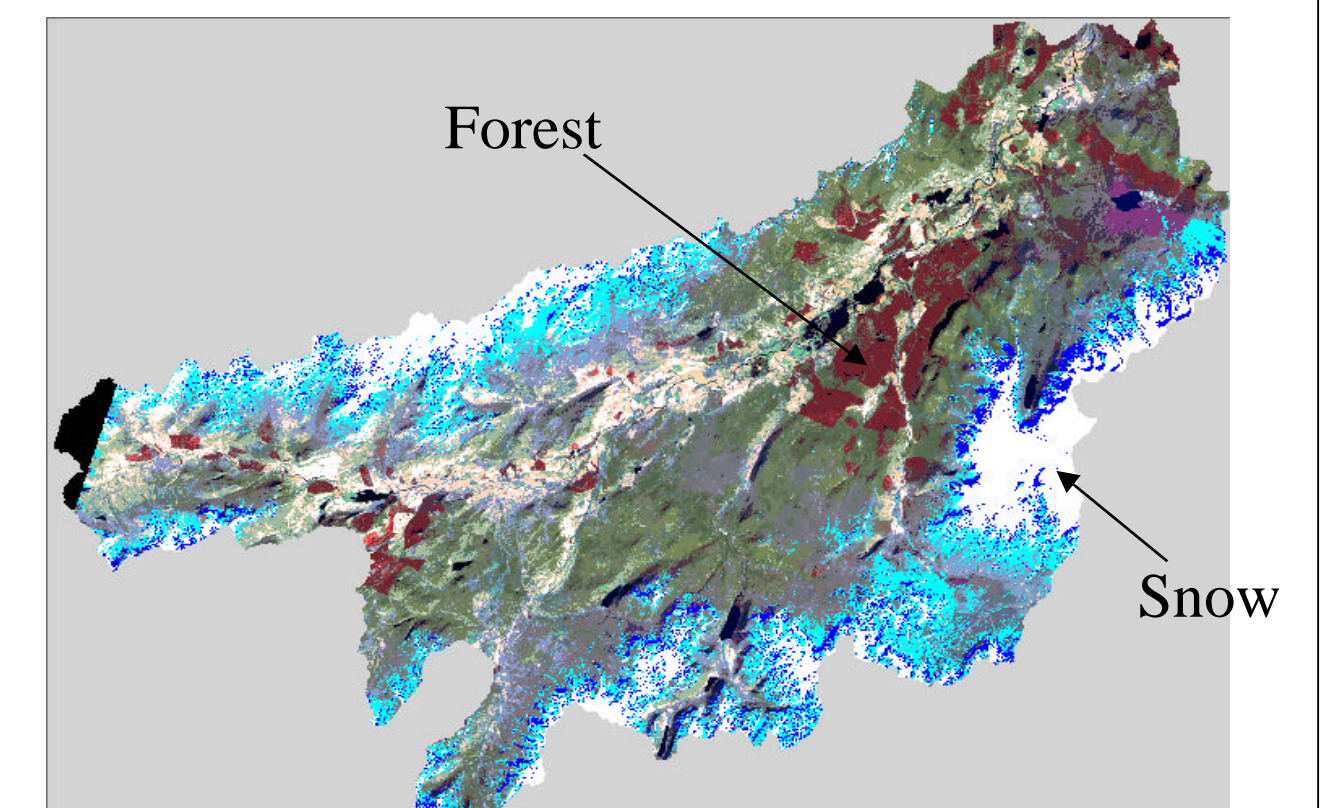
When good images are available, AVHRR or other EO data can be used to identify the location of snow cover. If images are available at regular intervals throughout the snowmelt season, the snow cover depletion curves can be calculated for use in SRM.

The following images are derived from AVHRR data with the collaboration of the British National Space Centre (BNSC) Scottish Snow Cover Project at the University of Dundee (snow is indicated in red).



Assessment of land cover from EO data

Land cover can be assessed using satellite imagery. The following image illustrates the land cover for part of the Spey valley, Scotland, derived from a Landsat TM image (17/4/87).



The Macaulay Land Use Research Institute is currently verifying the land cover classification derived in this way with that produced from the interpretation of aerial photographs.

Assessment of snow quality in Scotland

A field campaign was conducted to coincide with an ERS SAR overpass in March 1998, as part of the HYDALP project.

Snow characteristics were recorded at a number of locations on Cairn-Gorm in the Scottish Highlands. These data are being analysed by SCEOS* to find relationships between the response shown in the SAR image and the presence of wet snow in Scotland.

*Sheffield Centre for Earth Observation Science, UK



Data collection - Scotland 11/3/98

Developing a simplified version of SRM which can be used on the Internet

Aims

To illustrate how SRM works in a specific basin and allow the non-specialist user to investigate the implications of various climatic situations.

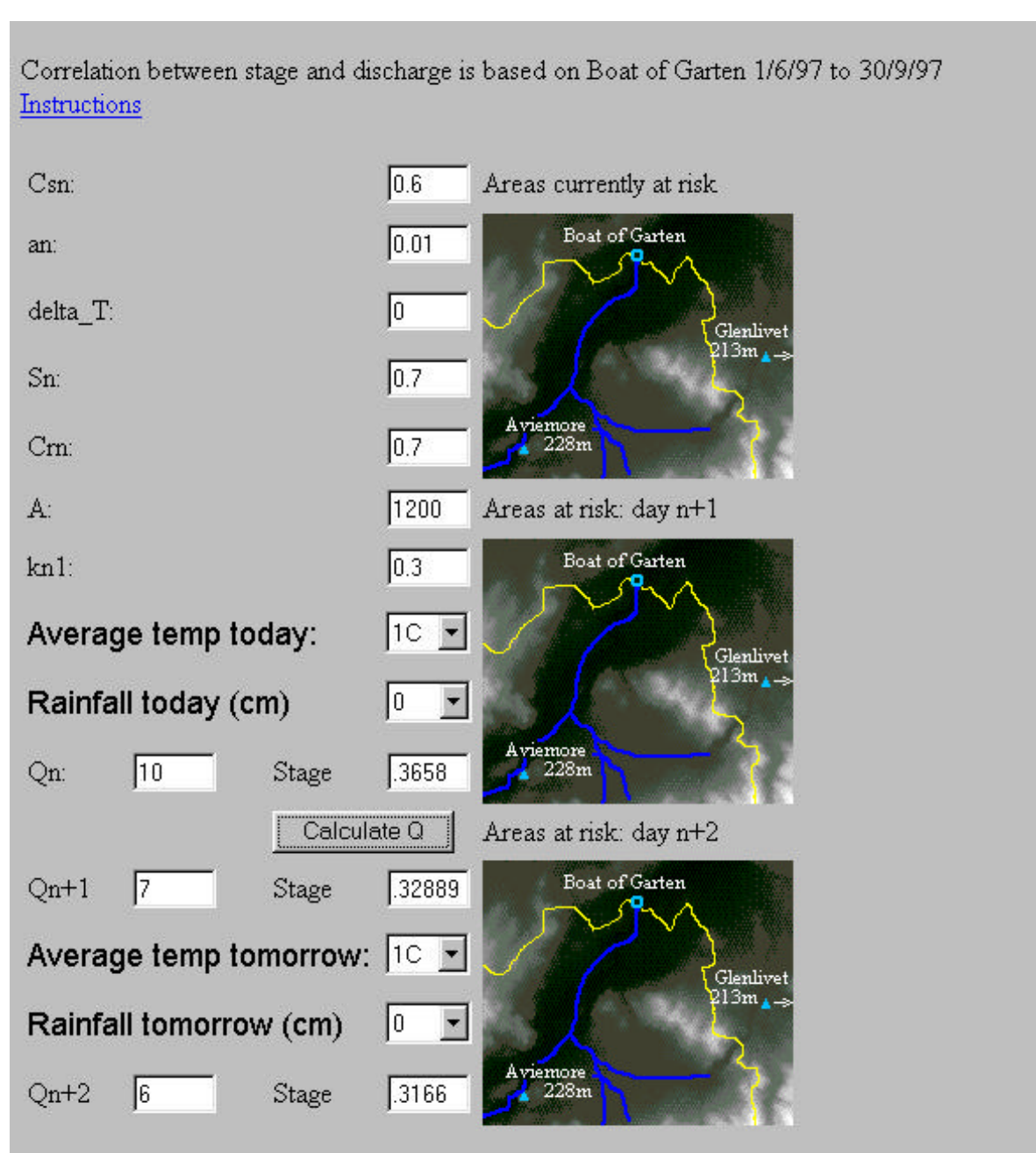
Method

A simplified version of SRM has been developed using Javascript. The flow volume estimates are converted to river depth, and then this is used to estimate where flooding will occur.

Note

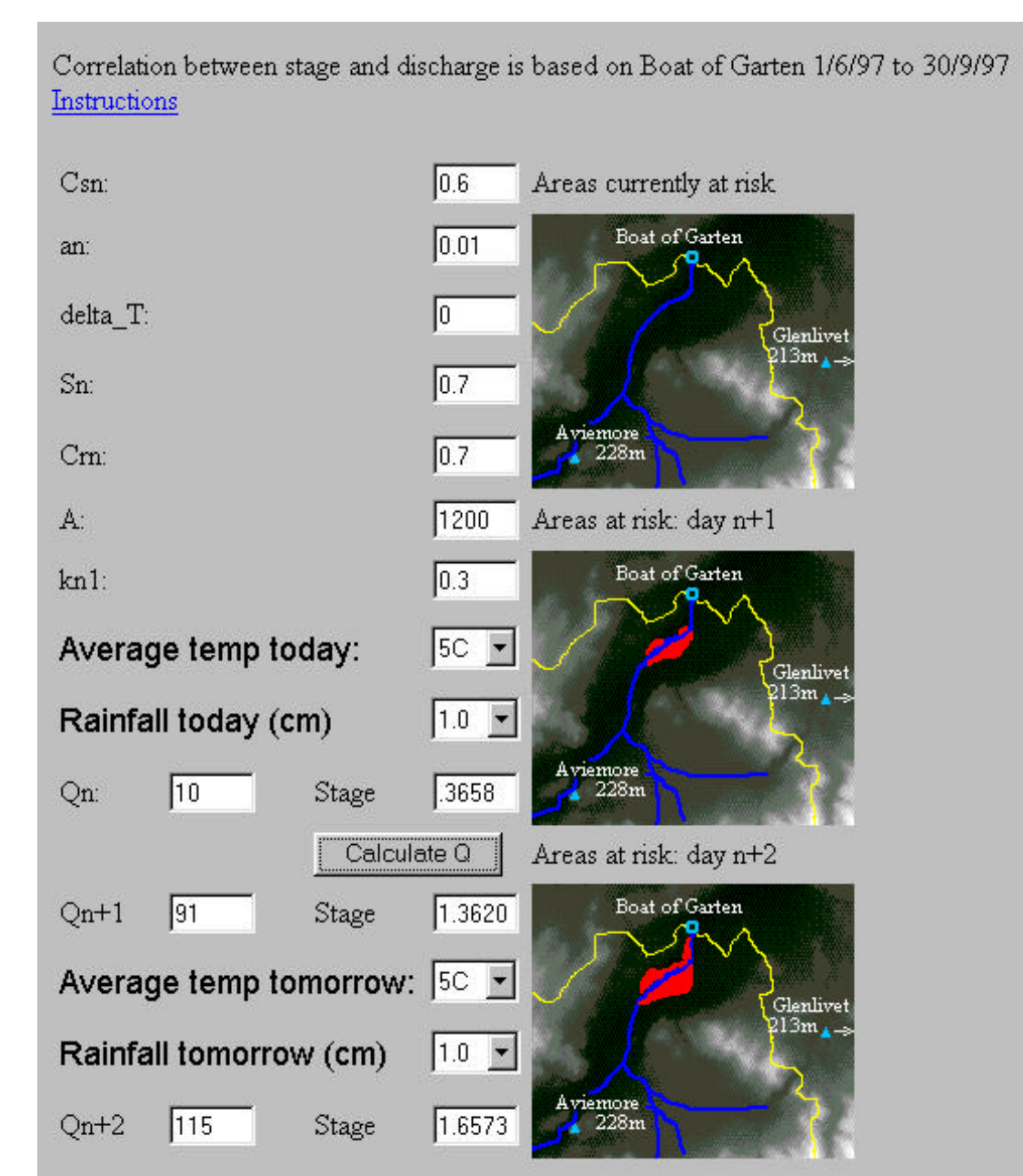
Currently this is a prototype, but will be further developed in the near future. All comments are welcome

For the given snow covered area, if the weather is cold and dry....



no flooding occurs.

On the other hand, if the weather is warm and wet....



extensive flooding occurs in some parts of the flood-plain.

The HYDALP project home page

Summary

The project is ongoing, and final results are not yet available. Nonetheless, the project WWW site has been visited by several hundred people from more than twenty countries.

Potential customers have been consulted, and have expressed great interest in the project.

The WWW site is being regularly updated. A publicly available demonstration of the project results will be made available in 1999.

The project home page can be found on <http://bamboo.mluri.sari.ac.uk/hydalp>

Acknowledgements

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