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IMAGE2000 - PROCEDURE FOR IMAGE SELECTION

Introduction

The objective of Image2000 is to produce an ortho-rectified cloud free image database across Europe, needed for the updating of Corine Land Cover database (CLC2000).

As a multi-purpose product, Image2000 needs to meet requirements at National and European level. According I&CLC200 product specification, Image2000 will be produced from ETM+ Landsat 7 satellite data, ortho-rectified in the national projection systems, as defined by National Administrations.

The year 2000 is targeted as reference year, but a deviation of maximum 1-year (1999 or 2001) is allowed to obtain a full coverage of Europe, which involves approximately 300 Landsat TM Frames.

The present document defines the procedures of image selection and the respective responsibilities of:

- The National Administration (Member States);
- SSC (Swedish Space Corporation), the contractor of the Commission in charge of the image acquisition and ortho-rectification;
- The Image2000 team of the Commission, represented for the present activity by the JRC (GI&GIS project of the SAI), in co-management with the EEA;
- EURIMAGE, the Image provider of Landsat 7 ETM+ data.



Acquisition windows

The National Administrations were responsible, following a questionnaire send out by Image2000 Team, to define two *acquisition windows*, i.e:

- a) A narrow/restricted acquisition window, corresponding to optimal acquisition dates,
- b) An extended time window, with an enlarged acquisition window (1 to several months beyond restricted window depending on the country).

The acquisition windows were transmitted by the Image2000 team to the contractor SSC.

Image 2000 Catalogue

The contractor SSC is responsible of the selection of the ETM+ images acquired within the acquisition windows during the 3 campaigns 1999, 2000, and 2001.

Quick looks of these *proposed images* are made available in a web-based catalogue application “Envicat”, developed and updated regularly by SSC. Quick-looks for the Image2000 catalogues are structured by country, satellite frame, year, acquisition windows (restricted/extended) and level of cloud coverage (cloud free and non-cloud free).

This application allows visualisation and selection of cloud free images.

SSC has to inform Image2000 Team on a regular basis (7 -10 days during overall acquisition campaign) on the current catalogue updating. Image2000 Team controls the selection made by SSC, especially on the archive (1999, 2000).

Selection of the Images

The National Administrations are notified by the Image2000 Team about the availability of quick look catalogue, and recent updating.

The National Administrations are responsible to select proposed images and

- send to Image2000 Team and SSC, within 2 *weeks*, a list of *selected images*.



- Informs the Image2000 Team, on the reasons for the non selection of image on a given frame (for instance, non availability, non optimal dates, cloud coverage, other preferences).
- Image2000 Team verify the selection and notify SSC and National team
- Informs the Image2000 Team, if any priority for ortho-correction of the selected images, is to be taken into consideration.

SSC stops the Quick look updating for all the frames with a selected image, but continues the acquisition campaigns for the other cases.

After 3 campaigns, SSC will analyse the best way to complete the missing area, on the basis of a mosaic of images available, even if partially cloudy, and submit it to Image2000 Team, who will validate it in relationship with the National Administrations.

Image selection criteria

The image selection should be determined by the following criteria and priorities:

- (a) cloud free images (i.e. 0 % or, in difficult regions <5 % cloud coverage)
- (b) acquired within the year 2000.
- (c) of an appropriate date (restricted window, then extended).

First priority

For the reference year 2000, cloud free images acquired within restricted time window should be selected as a first priority.

Second priority

When no cloud free images are available for this Year / window: the selection will search successively:

- in extended acquisition window for year 2000;
- in restricted acquisition window for year 1999;
- in extended acquisition window for year 1999.

Third priority



- When no cloud free images are available on the campaigns 1999 and 2000, the search will be continued in 2001, in restricted, then in extended acquisition windows.

As a general rule, National Administrations should not prefer future acquisitions expected in 2001 to existing images from 1999.

In order to ensure the overall progress of the project, and especially in difficult regions, Image2000 Team may recommend to NRC's or directly validate other proposal submitted by SSC.

Selection of non-cloud free images

Selection of non-cloud free images is to be avoided and can only be considered in specific cases,

- when no cloud free images are available within extended time window for acquisition year 1999, 2000 and 2001.
- Clouds located on restricted areas, on border of images and likely to disappear with overlap of adjacent scenes.



Specific case of “border” images

Border images are scenes located on the frontier between neighbouring countries. The selection of images will be done in agreement between the concerned National Administration and Image2000 team.

Image2000 Team will inform the 2nd National Administration of the selection made by the first. Without reaction or counterproposal within 2 weeks, this first selected image will be confirmed.

If no common agreement can be reached, the first cloud free image available within the restricted acquisition frame will be selected.

Validation of the selected images and Image ordering

The images selected by the National Administration have to be validated by the Contractor SSC who has to check its conformity with the 3 preceding chapters and check the overlap with neighbouring image previously validated.

The contractor SSC orders the *validated image* to Eurimage, and notify the JRC and The National Administration by “Image Order Notification” (e-mail) of each order of images.

SSC will directly inform the National Administration (copy Image2000 Team) in case of image rejection or any other problem which might occur.