

Exercise 2. Creating and interpreting multi-temporal digital stereo images.

Georefencing an image and making an orthoimage.

Below are shown 2 case of orthoimage (here is used the google image but the considerations should be made are the same for the other images).

In the image left you can see the segment of the buildings shifted from the buildings on the image. Instead in the image right the buildings segment fit in with the image.



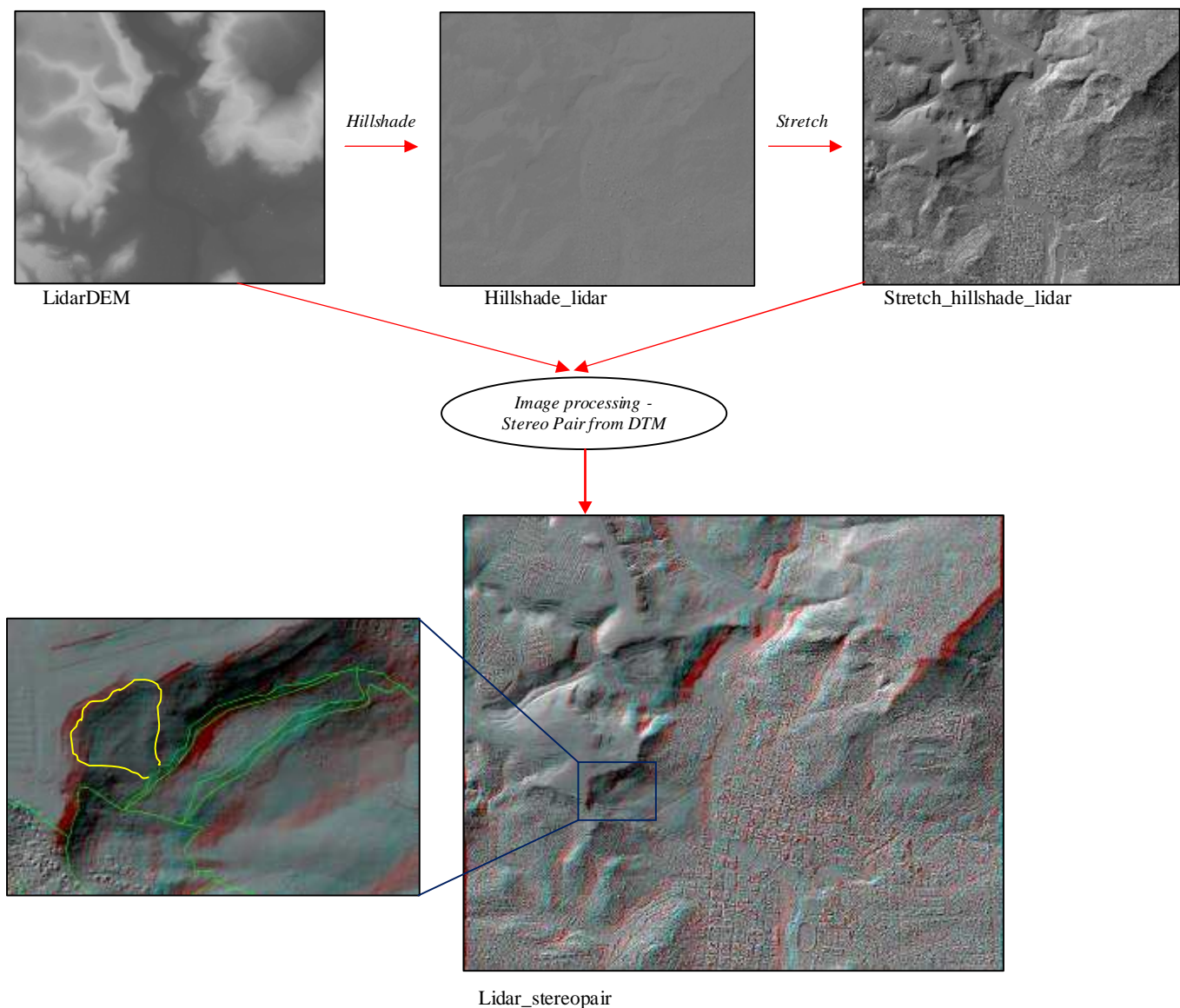
Google ortho image. Not accurate overlap.



Google ortho image. Accurate overlap.

Creating a stereopair of a Lidar image.

Below you can see how the stretch influence the visualization and the distinction of the objects. The image left shows the Hillshade_lidar without stretch and with a gray representation while the image right shows the stretch_hillshade_lidar with a stretch of -20 to 20.



In the example above in yellow is shown one of the possible landslides that can be recognized from the Lidar_stereopair.

Mapping landslide from digital stereopairs.

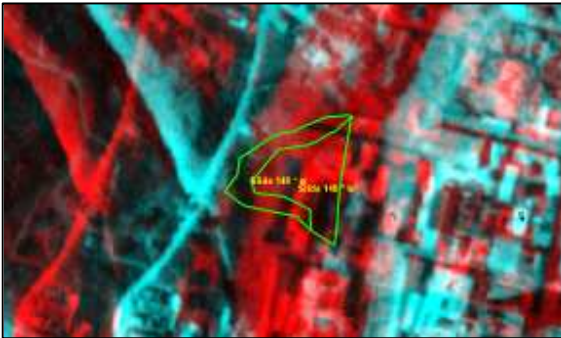


Image 1977: The landslide shown was not present.

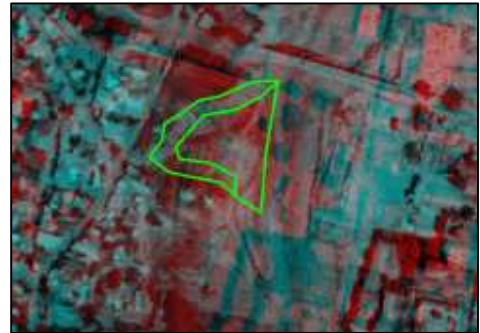






Image 1998: The landslide is active

For experienced ILWIS users:

Vector Data Editing: It is possible to edit the polygon maps, segment maps, and point maps. A polygon map is created by a closed polyline and a point into this area. The point has the attributes that will be transferred to the polygon and the segments define the area of the polygon. You can consult the ILWIS guide to read further explanation.



- Overlay the **landslide_boundary**, and the **landslide_id** to a stereopair. To edit the segment map **landslide_boundary**, go to *edit, edit layer* and choose the **landslide_boundary**.
- Select the **Insert Mode** button  to be able to start to digitize new segment. You can also split existing segment with a new one, snapping the new segment on the already existing.
- Use the **Move Point**  button to change the position of the points.
- Use the **Select Mode**  button to select the object (segments or points).
- Click on the **Exit**  **Editor** button when you finish.

Now that you have digitized the segments you need to insert a new point into the closed area identified by the segments.

It is very important that the polygons described by this segments, must to be closed.

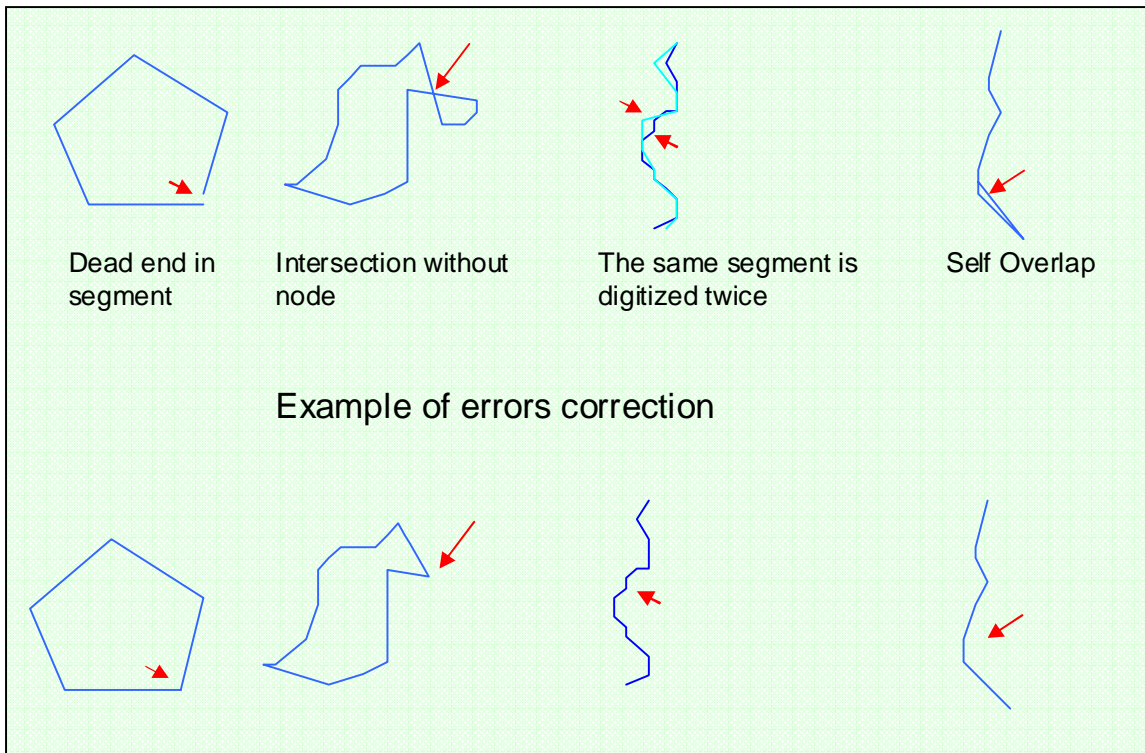


- To edit a point map, go to edit, edit layer and select the **landslide_id** map. Use the same button explained for the editing of the segments. After you insert a new point you have to type the new id. A window will automatically open. Select in this window the attributes of the landslide represented by the point just entered.

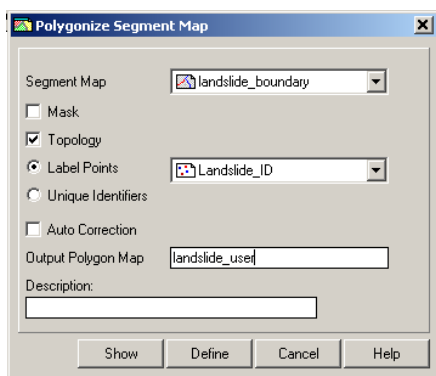
You have to check if there are errors before to polygonize a map.

There are 4 types of errors possible digitizing a segment map.

1. Dead end in segment. The segment is not connected to another segment.
2. Intersection without node. The segment overlays another segment without a node.
3. The same segment is digitized twice. This may happen in large files, or in files you obtain from someone else.
4. Self Overlap.



Before a map can be polygonized, it should be checked if there are errors, and correct them.



- In the catalog right click on the **landslide_boundary**, end select *edit*. From the menu of the editor, go to *File, check Segment* and select first **Self Overlap**. Correct the errors using the editing button.
- Check also the other kind of error in *File, check segment*.
- When there are not more errors you can convert the segment map into a polygon map. Right click in the catalog on the **landslide_segment**, *vectorize, segment to polygon*. Call output **Landslide_user**. See the image left.

