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Tsunami Chile Change Detection

A rapid investigation by RapidEye

Product Development / RapidEye Brandenburg / March 4th 2010

Study Objectives

- RapidEye satellites captured images over the city of Concepcion at the end January and one day after the earth quake. To support the humanitarian aid community, RapidEye has analyzed the images to provide early indicators to the changes which occurred in the area.
- The most important findings are shown in the following pages:
  - Overview natural color before and after the damage
  - Overview mapping of damaged and affected areas
  - Small area examples:
    - Airport area change to building
    - Landslide in forested area
    - Water intrusion into urban areas
    - Changes to road and buildings
    - The ocean currents

Overview Image Concepcion - Chile 22-01-2010

Overview Image Concepcion - Chile 27-02-2010

Overview Area Affected

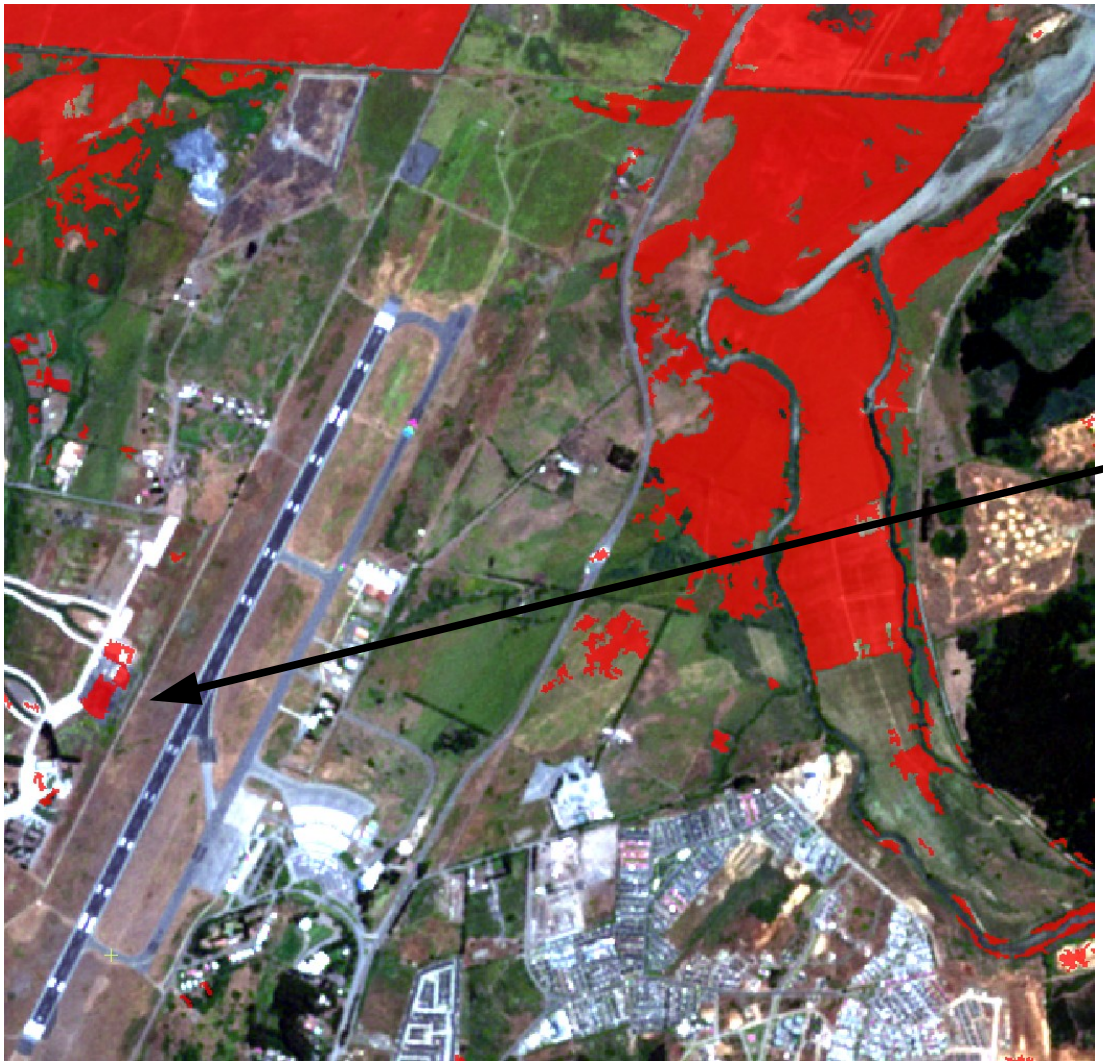
Close Up Detail - Case #1

- Concepcion Airport region: 2010-01-22

Close Up Detail - Case #1 – After earthquake

- Concepcion Airport region: 2010-02-27

Close Up Detail - Case #1 – Affected area



- The image shows changes in the vicinity of the airport.
- Note, the changes of airport buildings.

Close Up Detail Case #2

- Forested region outside of the city with steep slopes: 2010-01-22

Close Up Detail - Case #2 – After earthquake

- Forested region outside of the city with steep slopes: 2010-02-27

Close Up Detail - Case #2 – Affected area

- The dramatic wide spread change to the landscape is likely a landslide. Even the road was changed.

Close Up Detail Case #3

- Details of the urban area imaged on 2010-01-22

Close Up Detail - Case #3 – After earthquake

- Details of the urban area imaged on 2010-02-27
- The dark colored water is clearly seen between the urban structures reaching far between the houses.

Close Up Detail - Case #3 – Affected area

- Changes made visible. The exact impact of those changes need to be assess on the ground. The information is useful to direct ground staff to the right location.

Close Up Detail Case #4

- Coastal area and coastal road as imaged on: 2010-01-22

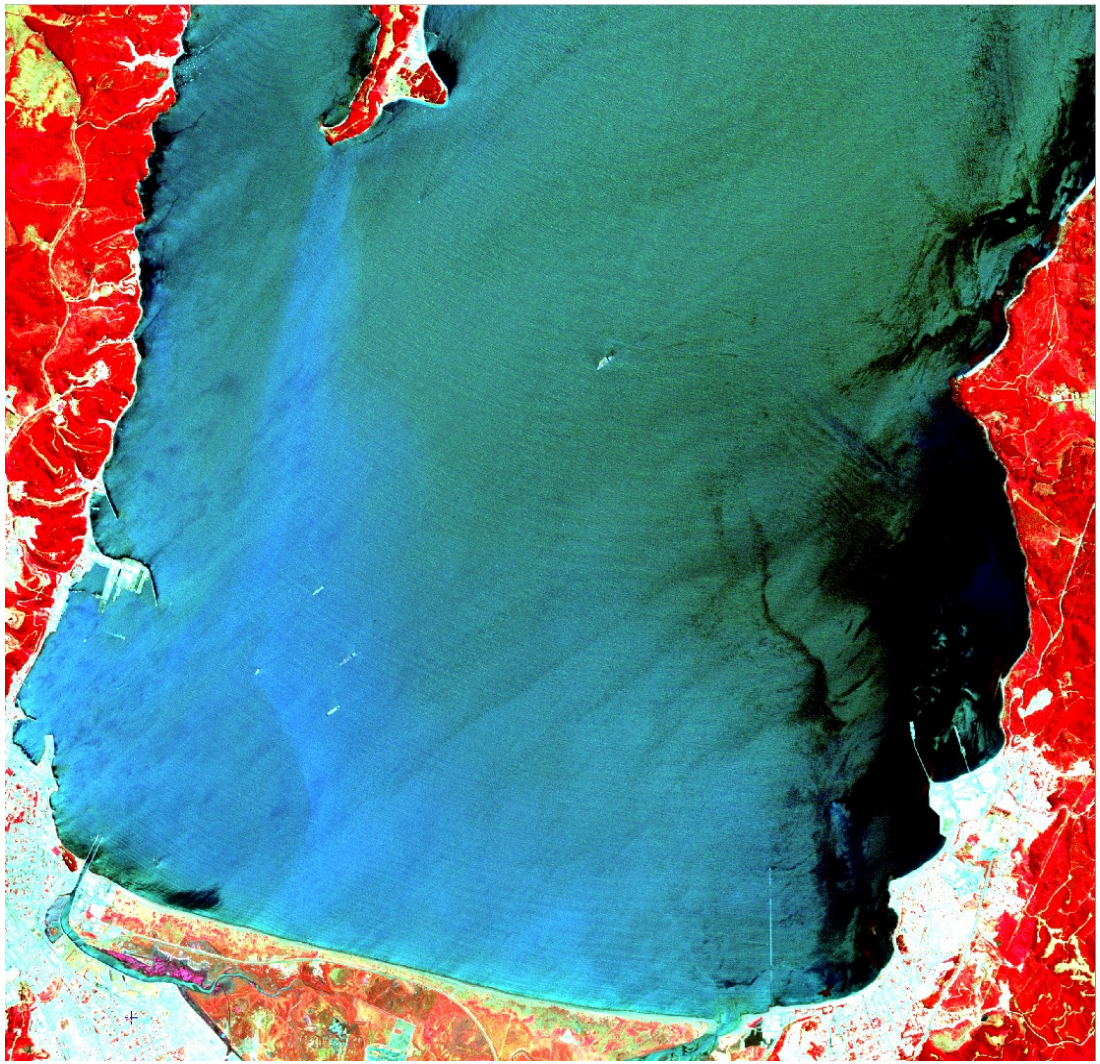
Close Up Detail - Case #3 – After earthquake

- After damage.

Close Up Detail - Case #4 – Affected area

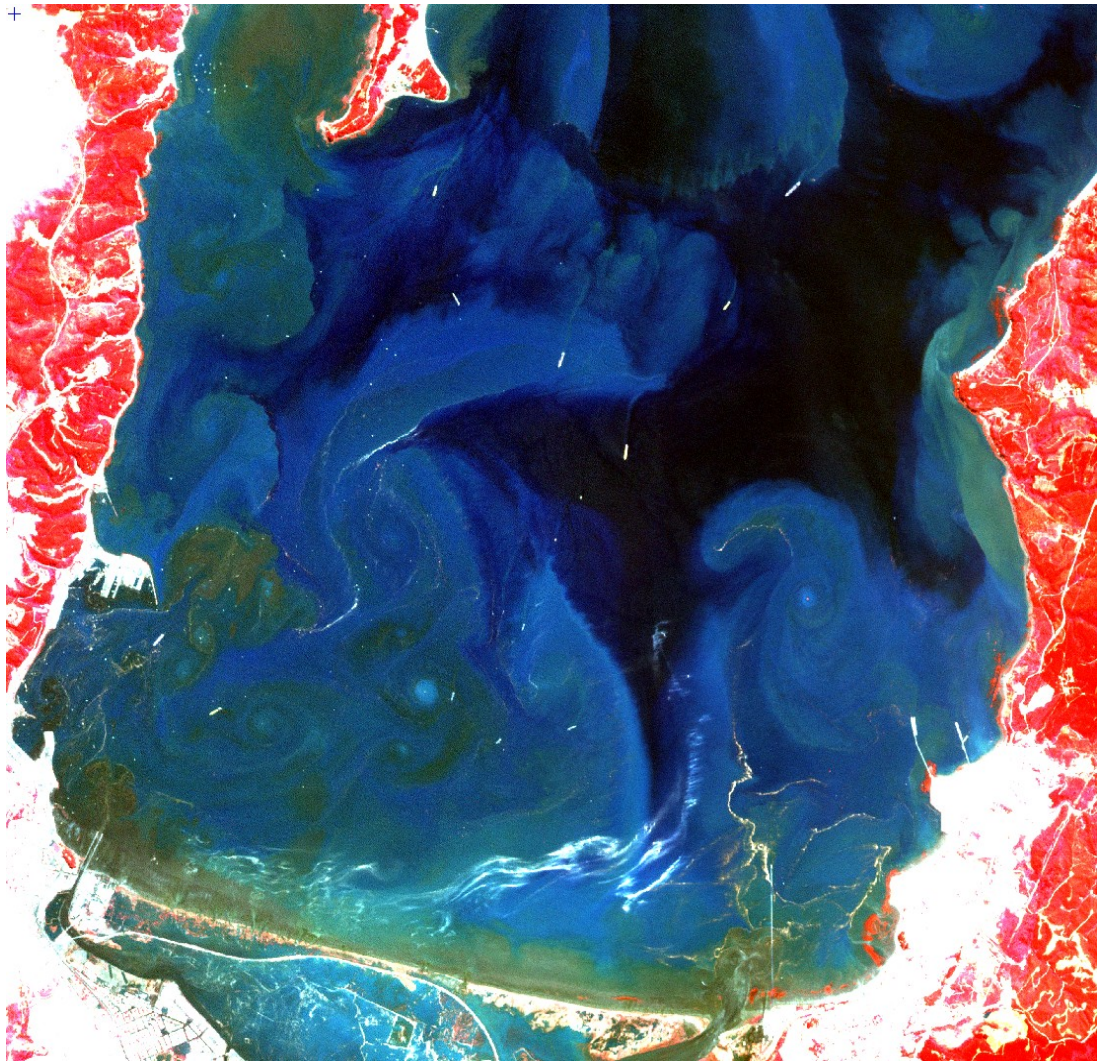
- The road and one large building have clearly been damaged.

Close Up Detail Case #5 – Ocean before earthquake



- The image shows the ocean on 2010-01-22.
- The red color in this image indicates healthy vegetation.

Close Up Detail Case #5 – Oceanic disturbances after earthquake



- The image taken a few hours after the earthquake clearly shows the currents within the waterbody.