



EUROPEAN COMMISSION  
DIRECTORATE GENERAL JRC  
JOINT RESEARCH CENTRE

## **JRC Info N. 5 9 August 2006 OIL POLLUTION IN LEBANON**

D. Tarchi, J. Fortuny, G. Ferraro, E. Garcia, B. Bulgarelli,  
S. Meyer-Roux, O. Muellenhoff, A. Sieber

### **JRC Analysis of Satellite imagery**

#### **Overall situation as of 9 August 2006**

The analysis of new images acquired over the area of interest on 6<sup>th</sup> August (ERS2 radar and MODIS) has confirmed the presence of various oil spills as previously reported in the JRC Info n. 4 dated 6 August.

The extent and location of the oil spills on 6 August is clearly shown in the satellite images of figures 1. In the map an indication of the coastline already contaminated or at high risk of contamination is provided.

As shown in the images of figure 2, the marine surface currents forecast for the first half of August (until 16.08.2006) from the Oceanography Centre of the University of Cyprus indicates that the most probable direction of movement of the oil slicks in the coming days is northwards.

#### **Jieh Power Plant**

The analysis of the latest radar image acquired on 9 August over the Jieh power plant indicates that oil is still present right in front of the Power Plant. As shown in the radar image of figure 3, a dark elongated feature 25 km long, identified with high confidence as oil, has its origin precisely at the location of the Power Plant.

The high resolution radar image acquired three days before on 6 August was already providing the same indication. A possible explanation of this is that oil is still coming out from the damaged tank(s) at the Power Plant. This image is shown in figure 4 jointly with a high resolution optical image, in figure 5, where the oil tanks are visible.

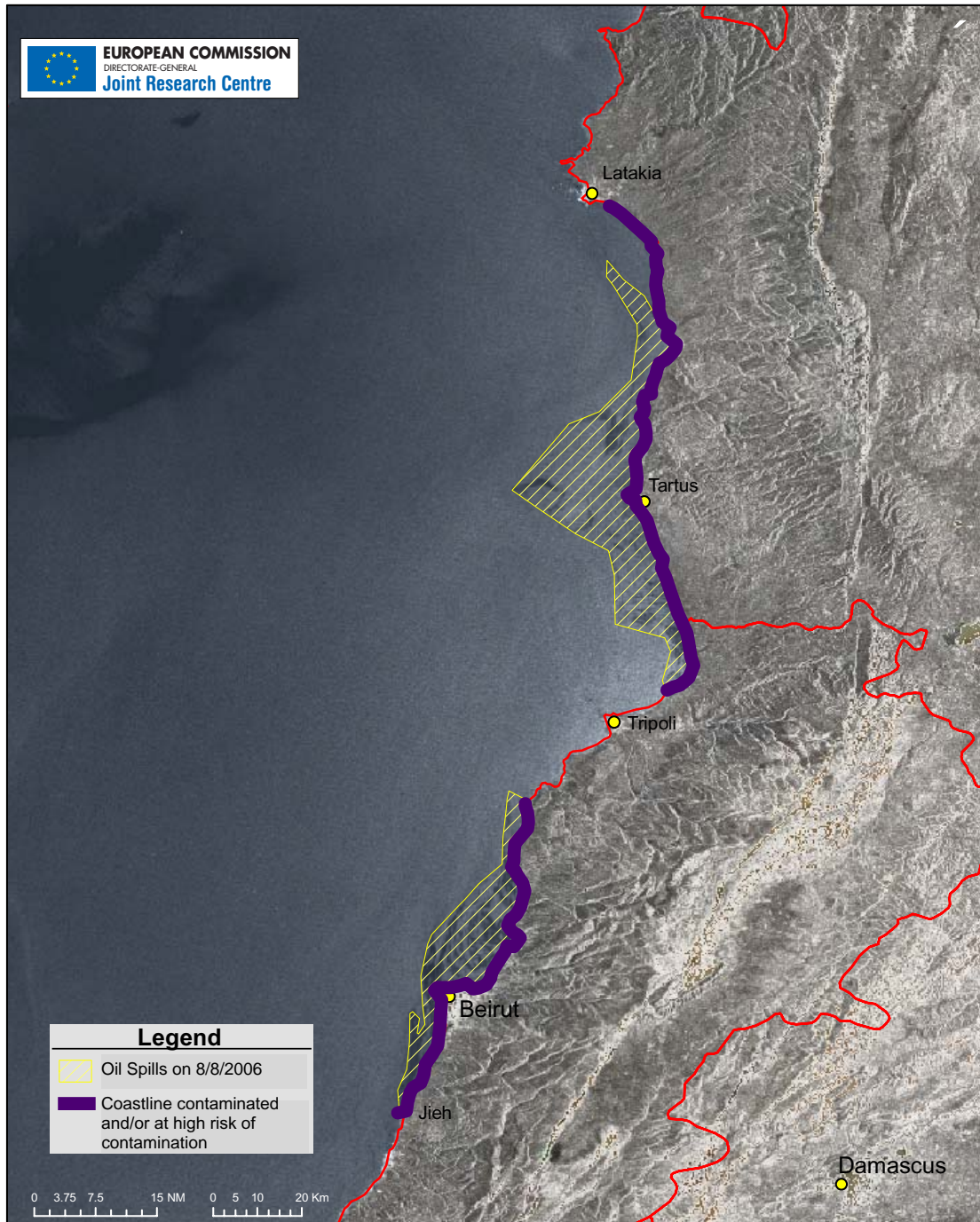
## **Sidon**

The image in figure 6 shows a zoom view from the radar acquisition of 6 August over a location along the Lebanese coast 5 km south of Sidon (and 15 km south of Jieh). The linear dark feature has been identified with a medium confidence level as one more oil discharge in addition to that at Jieh. The location of the source of this oil spill is very close (about 500 m) to the TAPLINE oil terminal of Zahrani (see the high resolution optical image of the area in figure 7). As pointed out in the previous JRC Info Reports, from this radar image, no indication about the amount of oil dumped into the sea can be given.

However, the radar image acquired on 9 August does not provide a confirmation of the presence of oil in the area (contrary to the Jieh area where oil at sea is clearly visible).

# Monitoring of oil pollution in Lebanon

Oil spill extent based on the analysis of ENVISAT ASAR image  
acquired on the 6th of August 2006 - 7:45 GMT



Envisat image: courtesy of ESA

Analysis by JRC's Oil Spill Team - European Commission

Fig. 1 – Oil spill extent on 6th of August as derived from the analysis of ENVISAT ASAR, ERS2 and MODIS images.



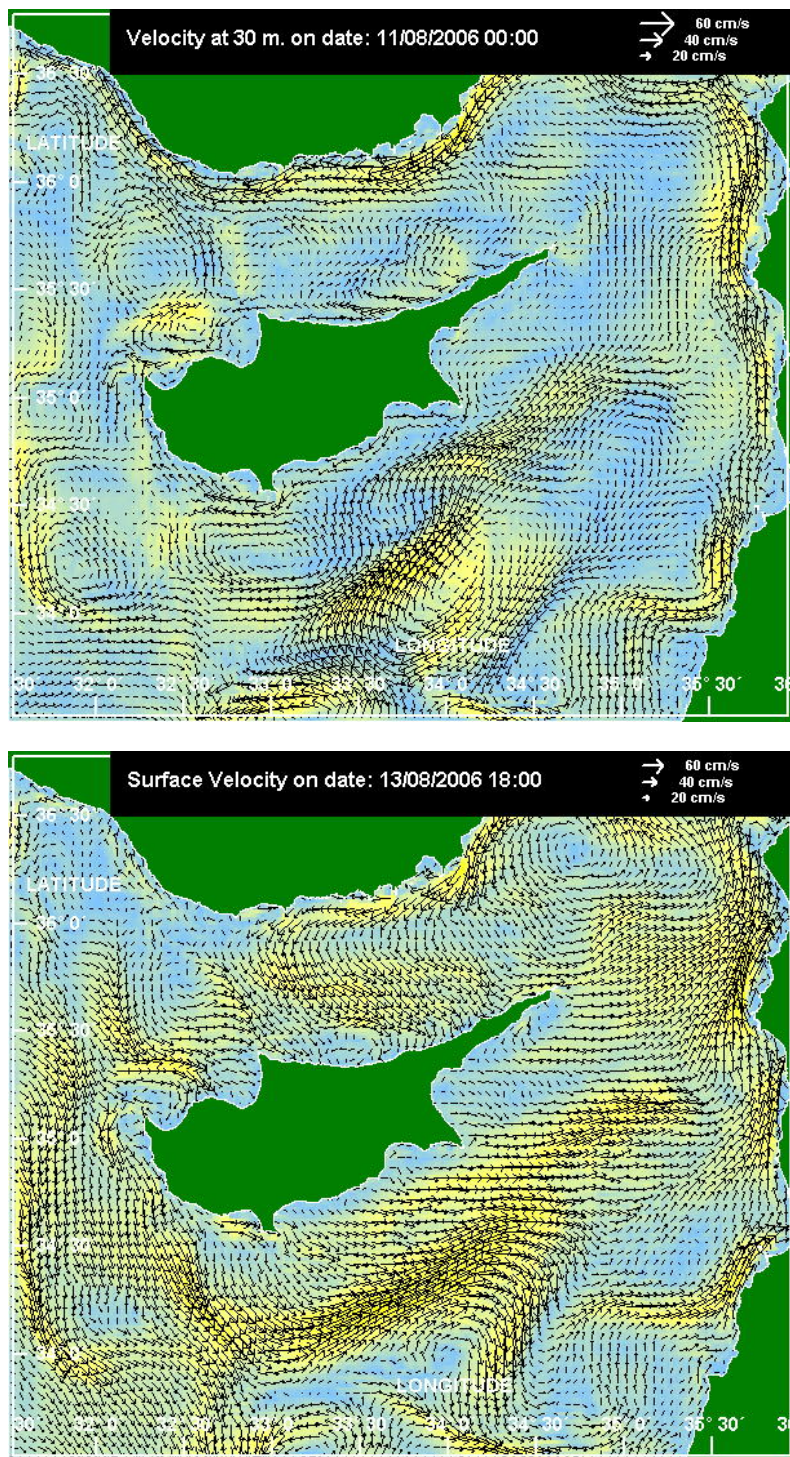


Figure 2 – Marine surface currents forecasts for 11.08.2006 (up) and 13.08.2006 (bottom) by the CYCOFOS system. Courtesy of Oceanography Centre University of Cyprus.

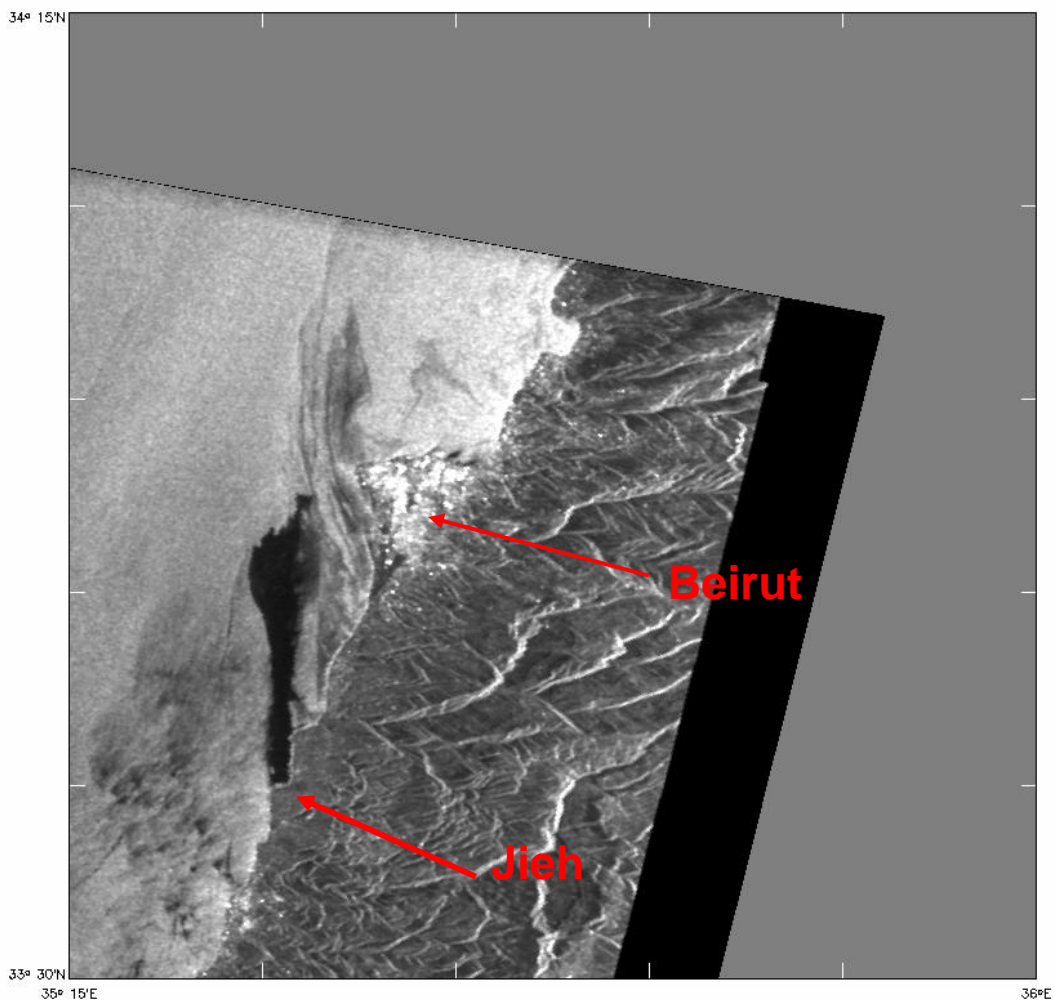


Figure 3 – Zoom view of the Jieh Power Plant Radar from the image acquired on 9 August (7:54 GMT).

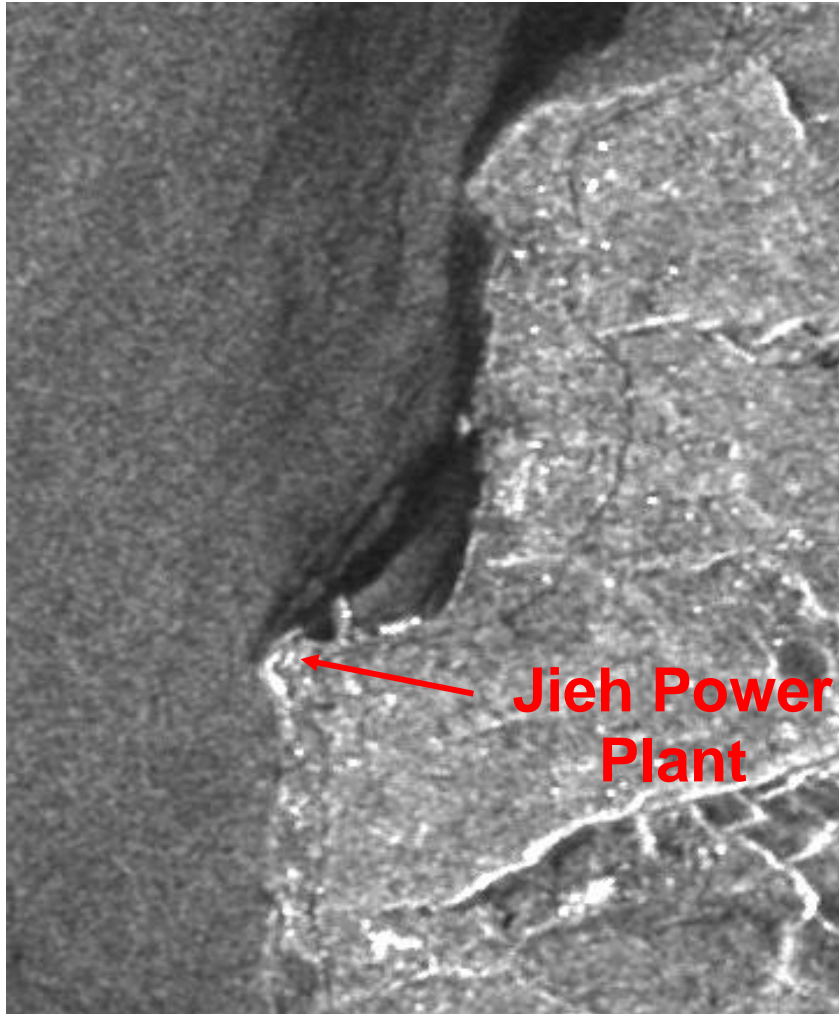


Figure 4 – Zoom view of the Jieh Power Plant from the radar image acquired on 6 August.



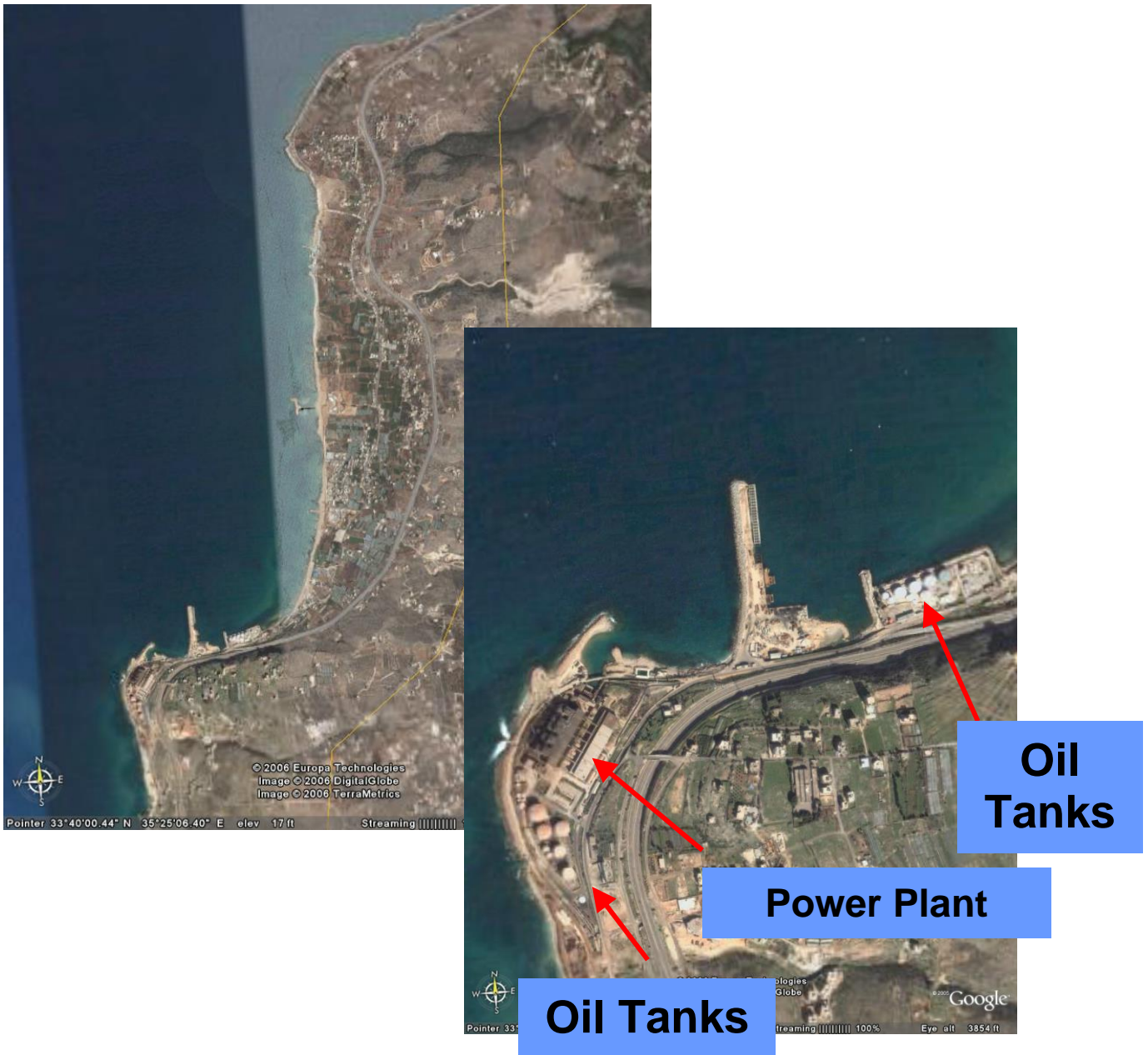


Fig. 5 – Optical map corresponding to the area in figure 3. Zoom view on the Jieh Power Plant (Source Google Earth). According to the analysis of the radar image oil is still coming out from the oil tanks in the two different locations as indicated with the red arrows.

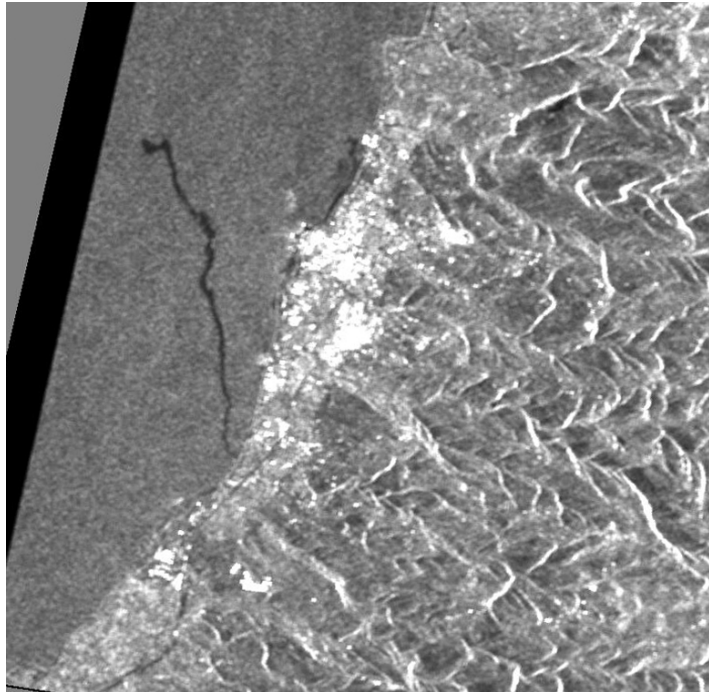


Figure 6 – Zoom over the area about 5 km south of Sidon.



Figure 7 – Satellite image over the same area of figure 5 (from Google Earth).