

URGENT!

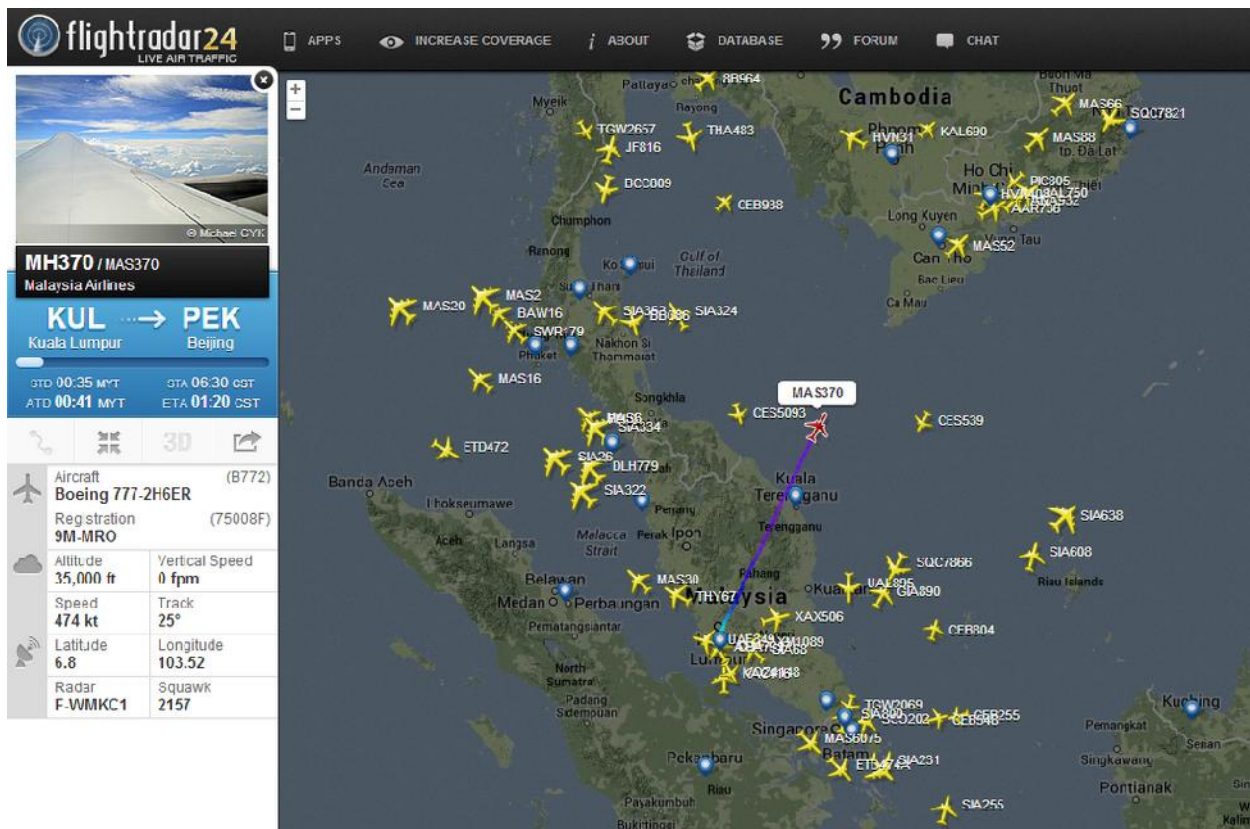
Help search for **the missing Malaysia Airlines Flight 370** with **Landsat-8 satellite imagery (acquired on 8 March 2014)**

Initial report: 7AM, Sunday 9 March 2014; last update: 10PM, Monday 10 March 2014

Contributed by staff at GeoSage

8 March 2014: Early morning

Malaysia Airlines Flight 370 was missing over the ocean between Malaysia and Vietnam.

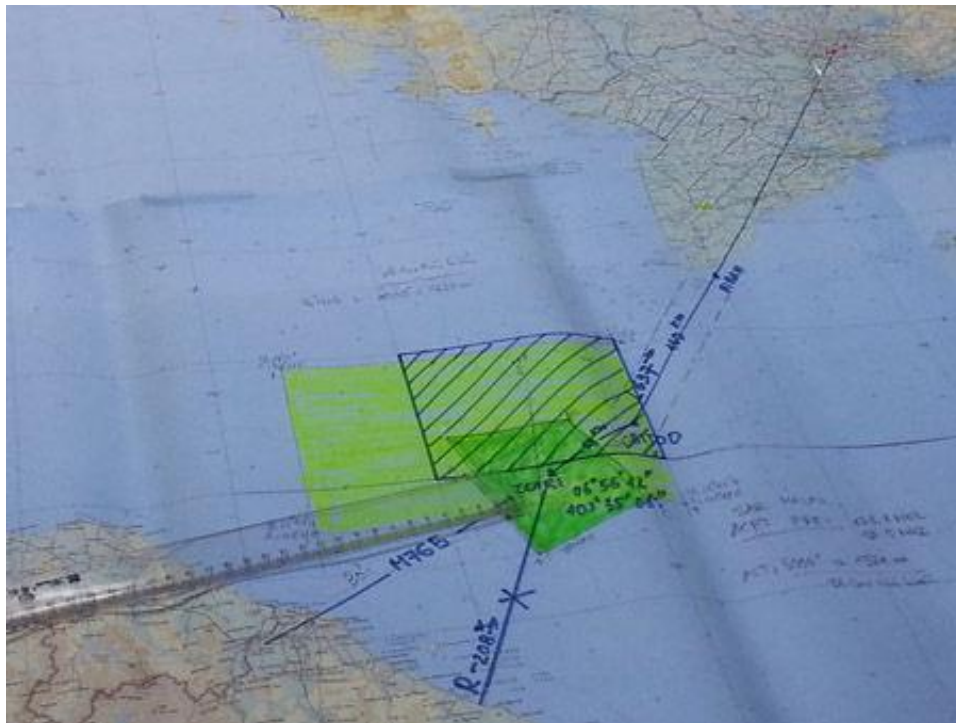


The weekend began with this tragic news! Like many of you, we were anxiously waiting for any new developments... It is so frustrating that almost after 24 hours we still do not have any clues about where and how it took place. We think of **the latest** Landsat-8 satellite imagery that may be of potential use for the search and rescue. We started this exploration on 0:30AM, Sunday 9 March 2014 and have worked on this overnight.

Planned flight path for the Flight 370 (in pink):

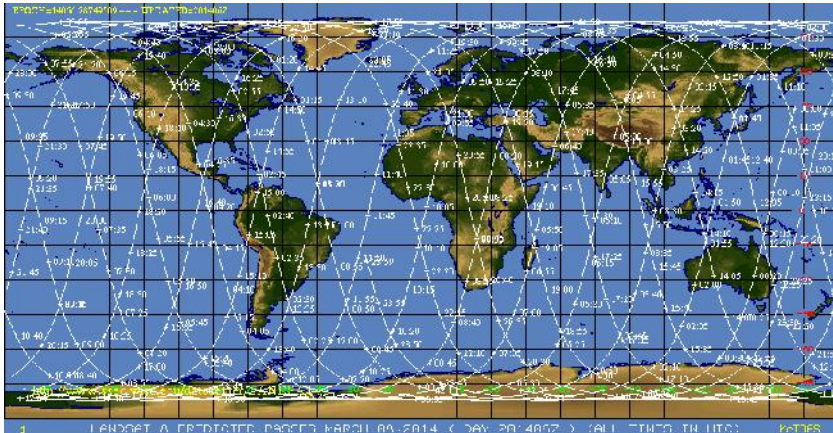


Draft search area (downloaded from the web on 8 March 2014):

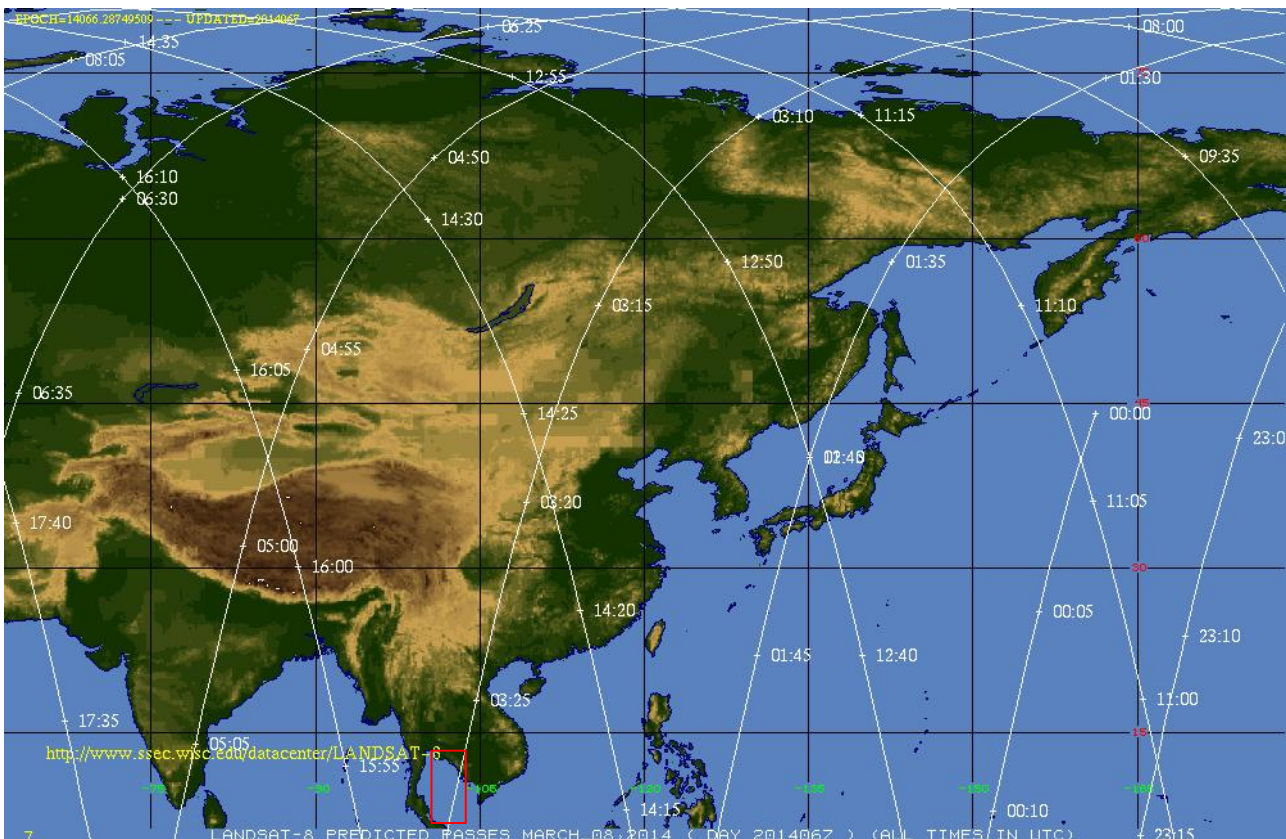


Challenge: No readily available maps and images for the vast and empty ocean! (This may be understandable given the event occurred on the remote ocean.) Landsat-8 satellite imagery acquired **ON THE SAME DAY** can be rapidly explored.

LANDSAT-8 Orbit Tracks on 8/3/2014 - <http://www.ssec.wisc.edu/datacenter/LANDSAT-8/>

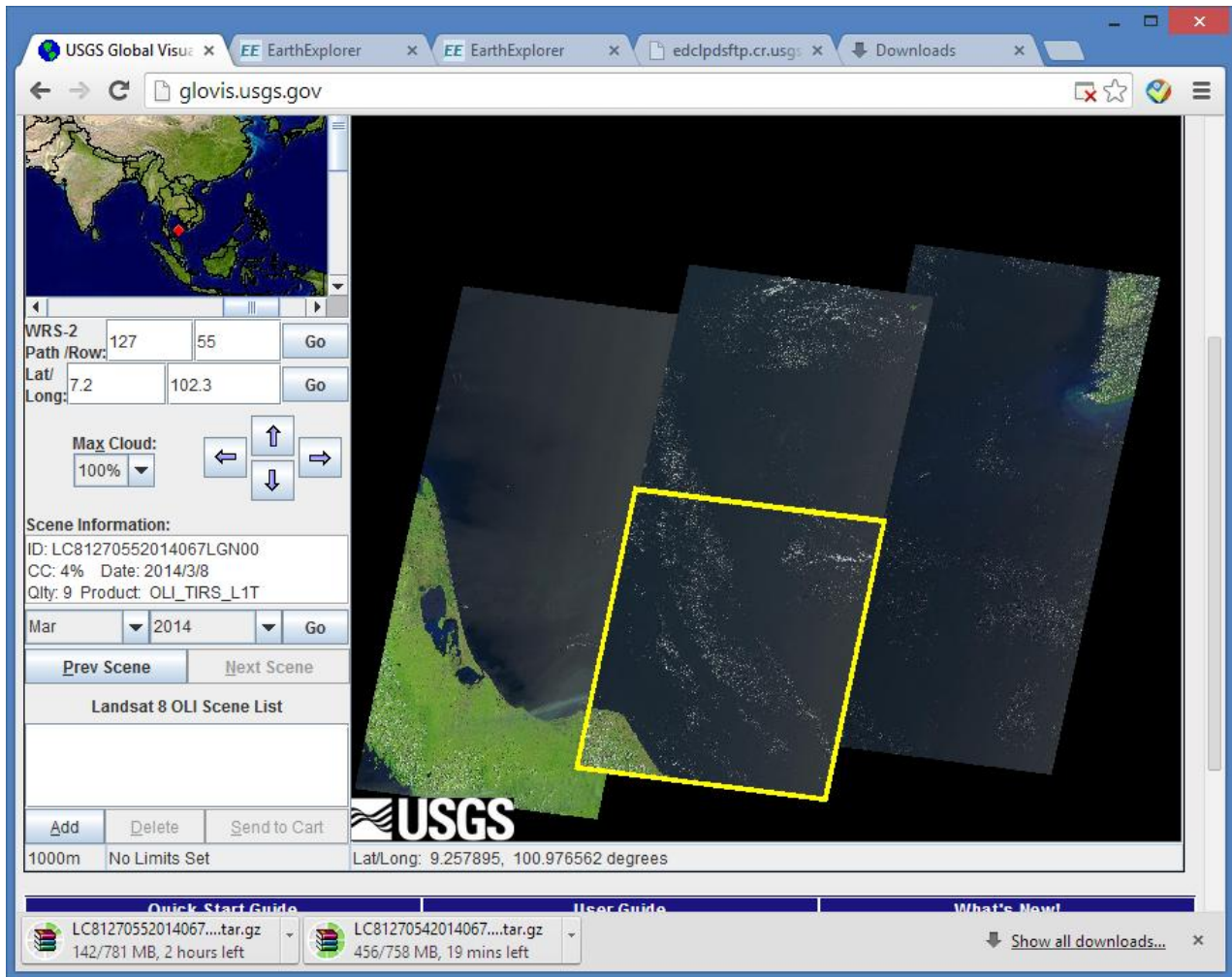


zoomed view for the region



Red rectangle area indicates Landsat-8 satellite flew over on **the morning of 8 March 2014** for this region! It would be a good opportunity to explore whether the timely Landsat-8 satellite imagery has captured something for the surrounding ocean region where the plane was reportedly missing.

Downloading Landsat-8 imagery raw data from the USGS GloVIS portal



Raw data download:

LC81270552014067LGN00 (Scene 1, in the south)
<http://earthexplorer.usgs.gov/metadata/4923/LC81270552014067LGN00/>

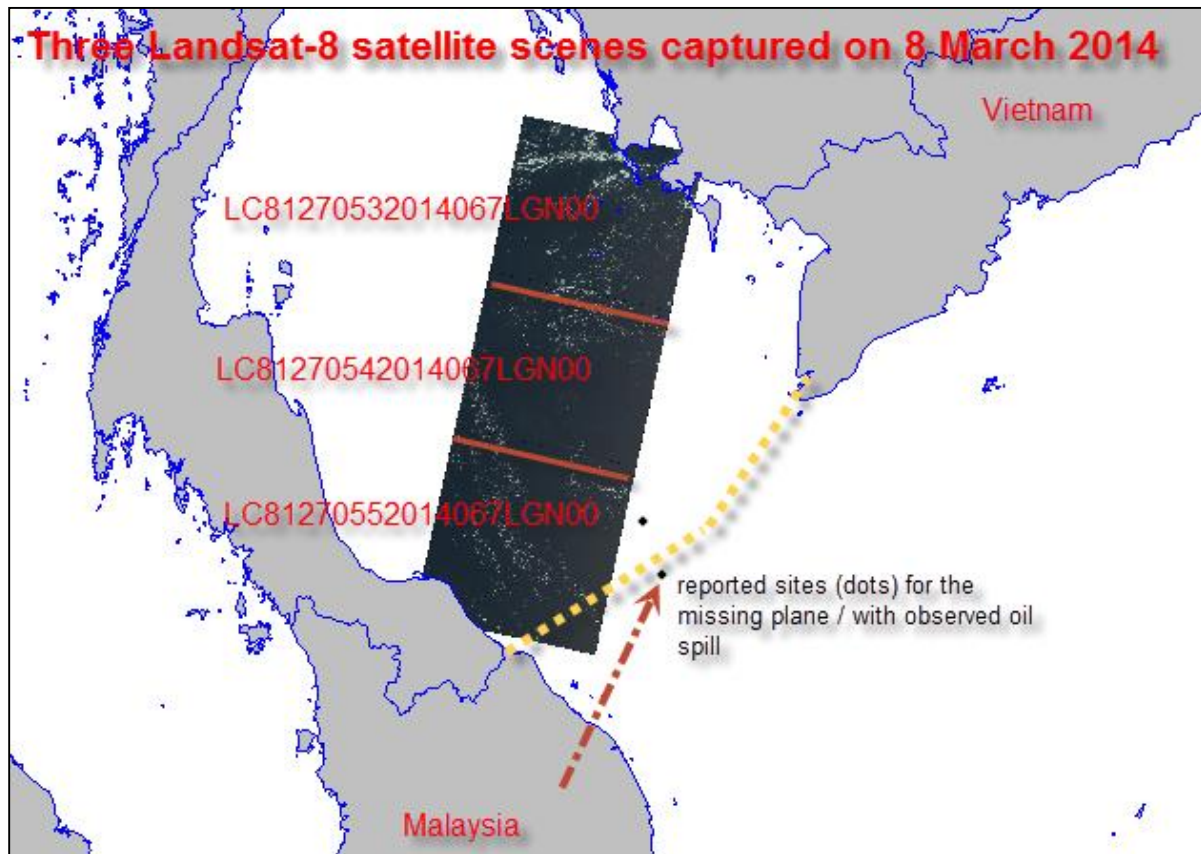
LC81270542014067LGN00 (Scene 2, in the middle)
<http://earthexplorer.usgs.gov/metadata/4923/LC81270542014067LGN00/>

LC81270532014067LGN00 (Scene 3, in the north)
<http://earthexplorer.usgs.gov/metadata/4923/LC81270532014067LGN00/>

Luckily, there are three scenes captured on the same day for the **surrounding ocean region**.

Unfortunately, no imagery is available for the main suspect area.

Nevertheless, given the surprisingly lack of information and useful maps over the past critical 24 hours, the Landsat-8 scenes that are now processed (at 15m-resolution and with Spectral Transformer for Landsat-8 imagery) may still be useful for the swift search and possibly rescue exercises **TODAY**. At least, with the satellite imagery the search can be more targeted (on Sunday 9 March 2014) and one can exclude large areas without any traces at this stage.



Processed scenes (at 15m-resolution) to download:

1 - LC81270552014067LGN00 (south scene): three formats

JPEG format (including geo reference, 20.1 MB)

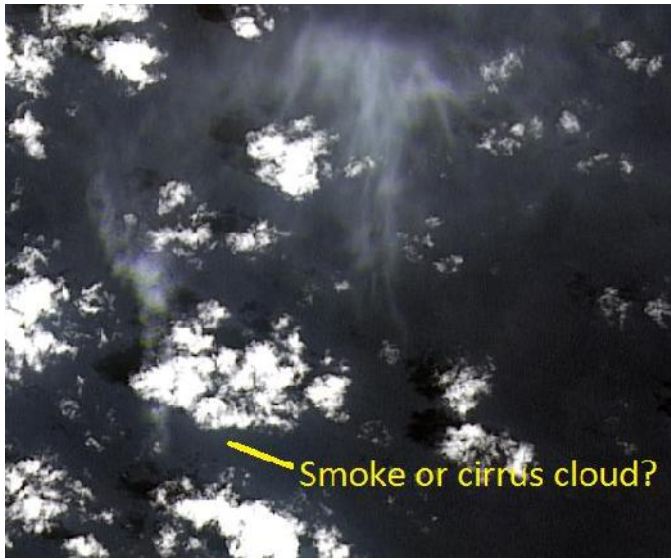
<https://drive.google.com/file/d/0B97haxkQQfH7LWN0eXlhSjZWeVU/edit?usp=sharing>

Google Earth KMZ format (JPEG compression, 24.4MB)

<https://drive.google.com/file/d/0B97haxkQQfH7WmtQVnUwTtc3Z1E/edit?usp=sharing>

Google Earth KMZ format (PNG for transparency support, 104MB)

<https://drive.google.com/file/d/0B97haxkQQfH7ZnBCQUx3VXIMSm8/edit?usp=sharing>



Extracts from the processed scene [LC81270552014067LGN00](#) (south scene)

2 - LC81270542014067LGN00 (middle scene):

JPEG format (including geo reference, 17.2 MB)

<https://drive.google.com/file/d/0B97haxkQQfH7b3ltLUktVE1vV1U/edit?usp=sharing>

Google Earth KMZ format (JPEG compression, 21.1MB)

<https://drive.google.com/file/d/0B97haxkQQfH7a3ZxbTgxM0djNmc/edit?usp=sharing>

Google Earth KMZ format (PNG for transparency support, 101MB)

<https://drive.google.com/file/d/0B97haxkQQfH7QmJxcDINYWVWVG8/edit?usp=sharing>

3 - LC81270532014067LGN00 (north scene):

JPEG format (including geo reference, 17.4 MB)

<https://drive.google.com/file/d/0B97haxkQQfH7Tlp5dDhaQ3M1QUU/edit?usp=sharing>

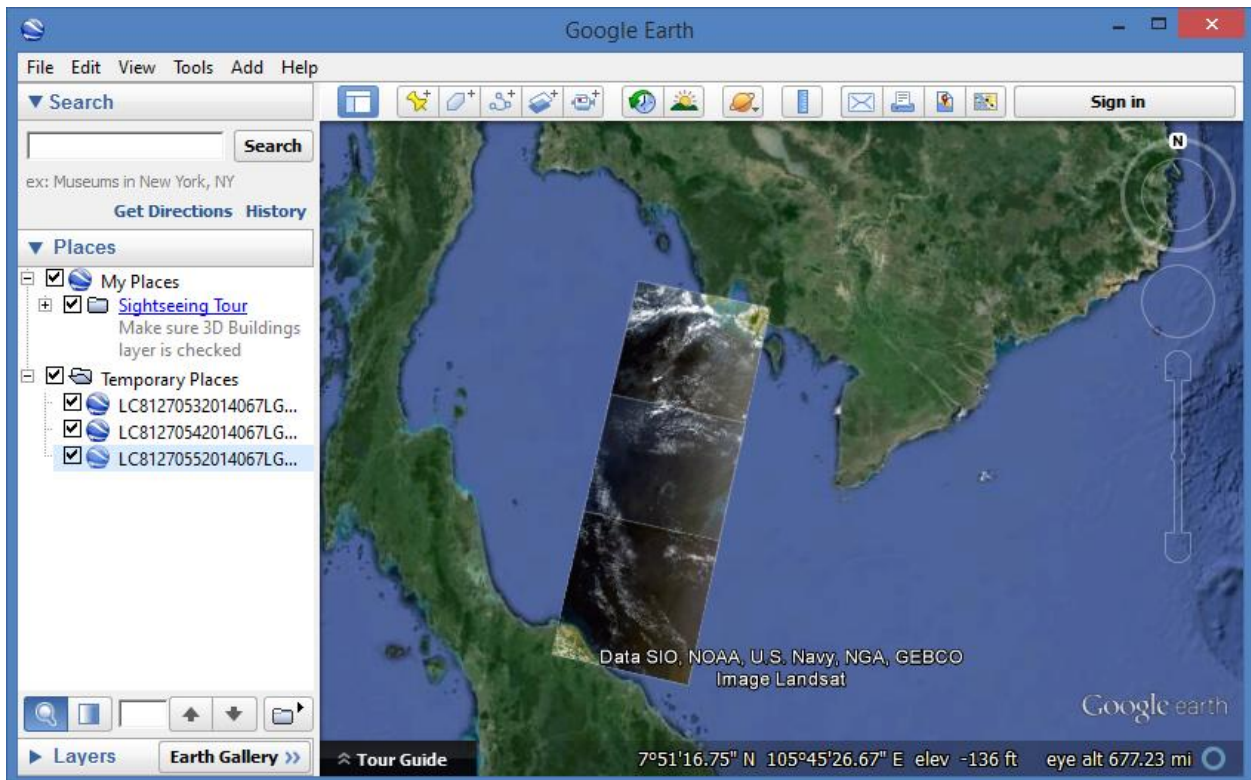
Google Earth KMZ format (JPEG compression, 23.0MB)

<https://drive.google.com/file/d/0B97haxkQQfH7OXZldjh6MIZLTIU/edit?usp=sharing>

Google Earth KMZ format (PNG for transparency support, 91.3MB)

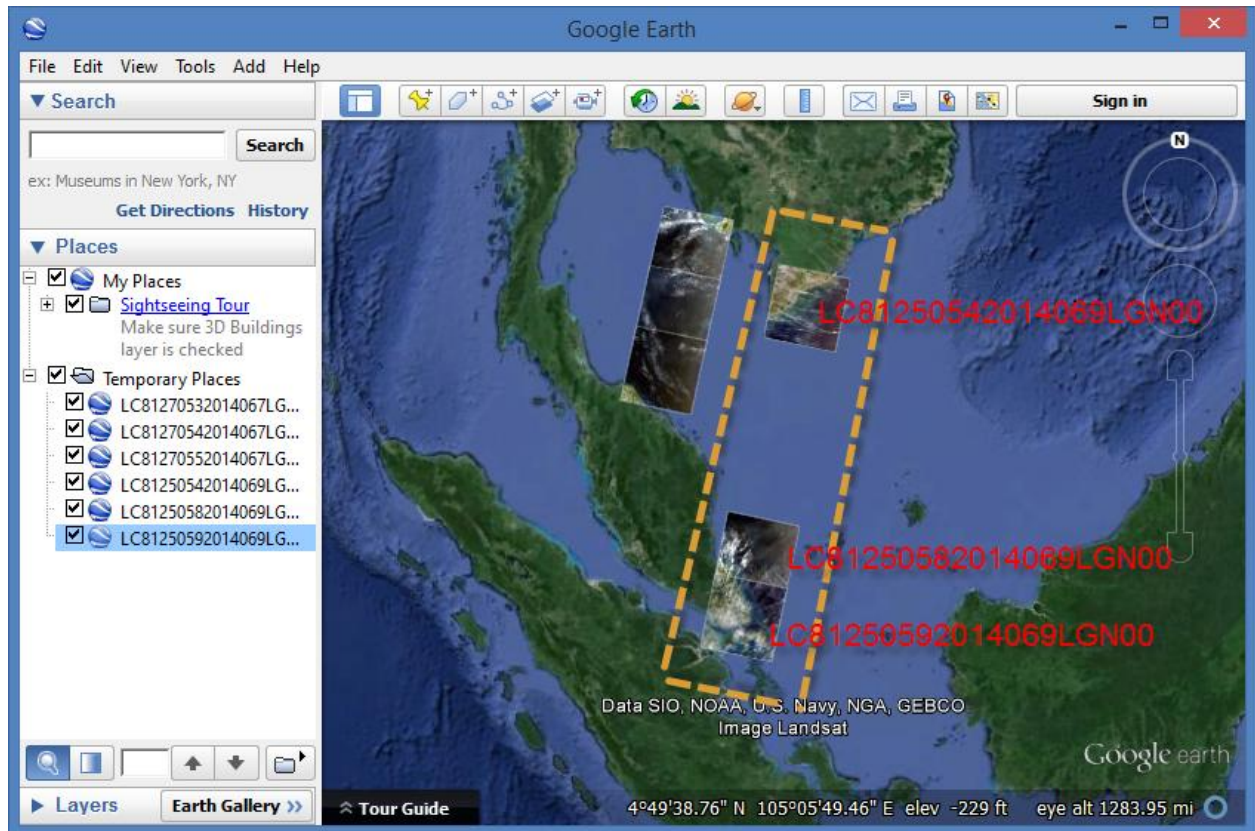
<https://drive.google.com/file/d/0B97haxkQQfH7OWo3R1FsVzM0bE0/edit?usp=sharing>

The above three processed scenes (PNG for transparency support) look like this in Google Earth:



Three more scenes captured by Landsat-8 satellite on 10 March 2014 (eastern side)

last updated: 10PM, Monday 10 March 2014



Raw data download:

Scene A1 - LC81250542014069LGN00

<http://earthexplorer.usgs.gov/metadata/4923/LC81250542014069LGN00/>

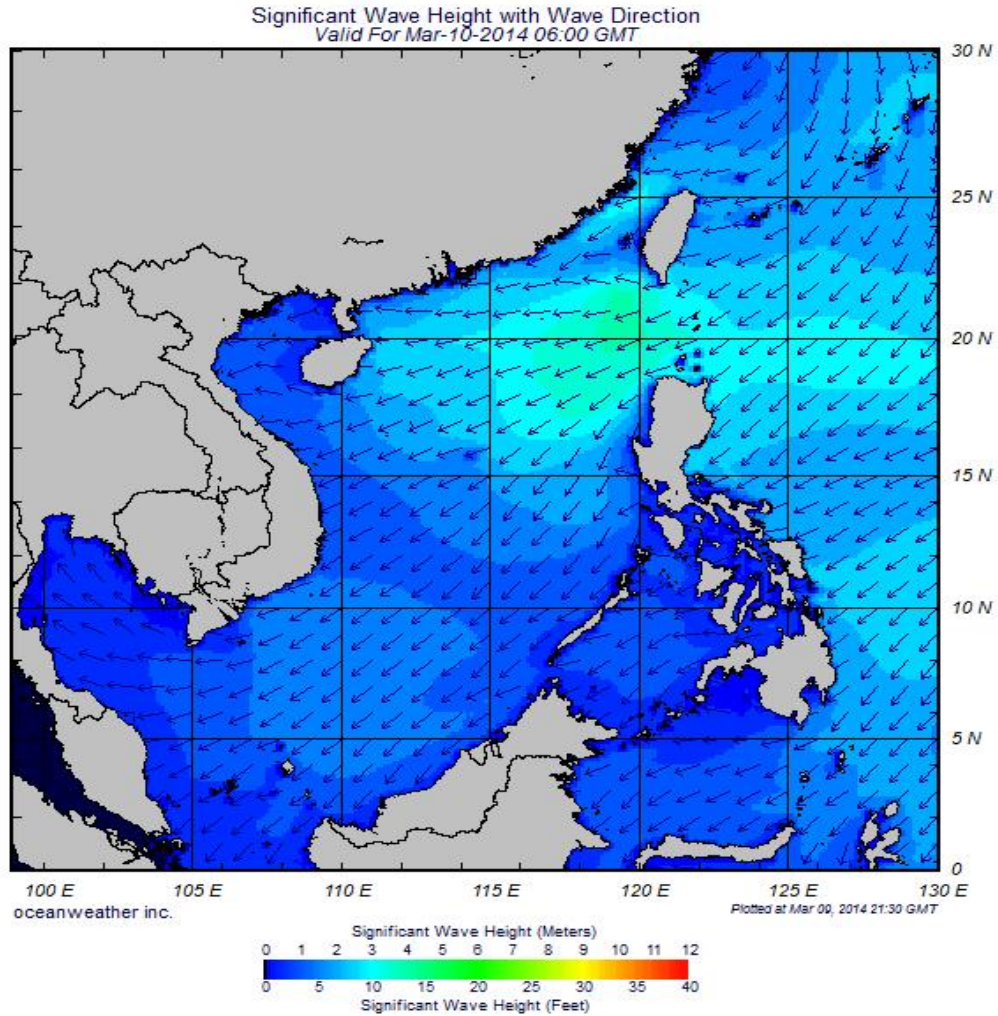
Scene A2 - LC81250582014069LGN00

<http://earthexplorer.usgs.gov/metadata/4923/LC81250582014069LGN00/>

Scene A3 - LC81250592014069LGN00

<http://earthexplorer.usgs.gov/metadata/4923/LC81250592014069LGN00/>

These scenes (acquired on 10 March 2014) are located at the eastern side. Debris probably would not float towards this direction given the main wave direction of the day from east to west (see next figure).



Wave height and **wave direction** for the region - valid for 10 March 2014 06:00 GMT
(Source: <http://www.oceanweather.com/data/South-China-Sea/index.html>)

Processed scenes (at 15m-resolution) to download:

A1 - LC81250542014069LGN00

JPEG format (including geo reference, 30.9 MB)

<https://drive.google.com/file/d/0B97haxkQQfH7a25JYUVaT2NQZzA/edit?usp=sharing>

Google Earth KMZ format (JPEG compression, 39.1MB)

<https://drive.google.com/file/d/0B97haxkQQfH7LWYxMy0zVFfV3M/edit?usp=sharing>

Google Earth KMZ format (PNG for transparency support, 123MB)

<https://drive.google.com/file/d/0B97haxkQQfH7NUVGSWhDNEpxZ1E/edit?usp=sharing>

A2 - LC81250582014069LGN00

JPEG format (including geo reference, 17.7 MB)

<https://drive.google.com/file/d/0B97haxkQQfH7ZldlUTNNZExoZ2M/edit?usp=sharing>

Google Earth KMZ format (JPEG compression, 22.3MB)

<https://drive.google.com/file/d/0B97haxkQQfH7QU1wWmdyNGVabnc/edit?usp=sharing>

Google Earth KMZ format (PNG for transparency support, 106MB)

<https://drive.google.com/file/d/0B97haxkQQfH7c1pnanRWeTYwaDQ/edit?usp=sharing>

A3 - LC81250592014069LGN00

JPEG format (including geo reference, 20.1 MB)

<https://drive.google.com/file/d/0B97haxkQQfH7WWVfR2JFY2tXSDg/edit?usp=sharing>

Google Earth KMZ format (JPEG compression, 27.1MB)

<https://drive.google.com/file/d/0B97haxkQQfH7NEFnMVJqTDdZNTg/edit?usp=sharing>

Google Earth KMZ format (PNG for transparency support, 97.8MB)

<https://drive.google.com/file/d/0B97haxkQQfH7WFn0TVU3Y2oyN2s/edit?usp=sharing>

Please pass any useful information to corresponding authorities to assist with the search and rescue:

Department of Civil Aviation (Malaysia)

http://www.dca.gov.my/policy/contact_us.html

<http://www.dca.gov.my/Directory/DgcaOffice.html>

Civil Aviation Authority of Singapore

http://www.caas.gov.sg/caasWeb2010/opencms/caas/en/About_CAAS/Contact_us.html

<http://www.caas.gov.sg/caas/en/index.html>

Department of Civil Aviation (Thailand)

<http://www.aviation.go.th/th/index.php>

Civil Aviation Administration of Vietnam

<http://www.caa.gov.vn/>

Civil Aviation Administration of China

<http://www.caac.gov.cn/>

Check this link for any updates:

http://www.geosage.com/Special/Landsat8_Flight370.pdf

Contact for potential technical issues: Tim.Lee@GeoSage.com