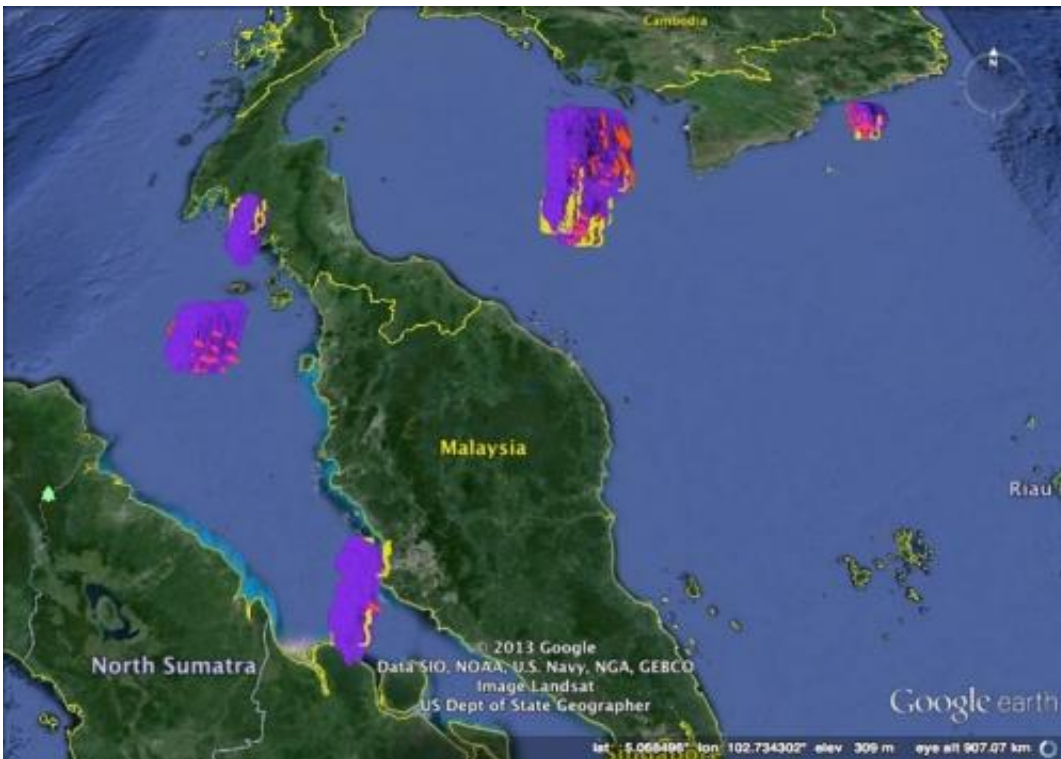# Crowdsourcing hunt for MH370 extends to millions of sq miles

March 18 2014, by Tuong-Thuy Vu And Graham Kendall

The picture so far as the crowd springs into action. Credit: Google Earth

The hunt for MH370 now involves 26 countries and an estimated 30 million square miles of terrain over both land and sea. The missing aeroplane may have continued flying for up to seven hours after sending its last signal means it could be located anywhere along two vast corridors of inquiry, making this the biggest search for a missing

aeroplane in history.

The search off the east of the Malaysian Peninsula has been aborted and the focus has shifted to the Andaman Sea and the Indian Ocean. The Vietnamese and Chinese governments have directed their national Earth observation satellites accordingly, so as to capture the Gulf of Thailand, thus expanding the range of imagery available for official searches.

Even before the search was moved, around 43 ships and 58 aircraft were being used to look for the plane. Now we are looking at areas across Burma, Bangladesh, India, Pakistan, Kyrgyzstan, China, Nepal, Tajikistan and Afghanistan, resources on the ground will be quickly stretched.

After initially searching for the missing MH370 aircraft using traditional methods, crowdsourcing techniques quickly began to be used to cover a lot of ground in a relatively short period of time. Now that the search area has expanded so dramatically, these efforts are more important than ever.

There has already been enormous interest in a crowdsourced search organised by DigitalGlobe, a US-based company specialising in satellite imagery. To be able to identify an aircraft, images with a resolution of a few metres will suffice. Even if the aircraft had broken up, the concentration of floating objects in one area could be easily discriminated if the viewer struck upon the right area.

The images provided on the tomnod platform are at a lower resolution but are good enough to allow volunteers to identify large objects such as aircraft, oil terminals and vessels.

TomNod locating oil terminals and vessels.

Under the guidance of the geospatial research team, students at the University of Nottingham Malaysia campus are pitching in to analyse satellite imagery for clues.

The extended search area would be more difficult to cover using traditional, near-range methods. With two possible corridors, and the unclear number of flight hours after MH370 disappeared from radar, where would you send ships and aircraft? At the moment several Earth observation satellites are scanning these areas, generating images, which can be searched using crowdsourcing and providing possible hotspots where more traditional searches can be focused.

Most students have some knowledge of image processing, but participation in searching using the tomnod platform does not require a high level of expertise. The most useful skills are good eyes and

patience.

The main challenge when looking for objects on open water is boredom. It's relatively easy to spot an object in a vast expanse of blue but volunteer eyes soon become strained scanning similar-looking terrain for long periods of time. On the other hand, searching for objects on land is much more complicated as there are many more object types to distract you.

Nottingham volunteers are looking at low-contrast images showing very dark water as the images were captured in the early morning. We tried to develop a simple structure for searching between the team members but it became impossible since different members were assigned to different areas when entering the website. They also don't really know exactly where they are looking because no geographical links have been provided.

That's understandable though. To encourage participation, the crowdsourcing task has to be designed to be as simple as possible. Images have to be in understandable form. That is, what people would normally expect to see, and consistent in terms of resolution across the search area. There is little time for training the crowd, although some searches can be enhanced with the help of machine learning or artificial intelligence.

Search area tagged by the crowd.

Because expertise is not required, we cannot expect a high level of accuracy from each individual but the wisdom of the crowd is what really counts. The more people agree on an item of interest, the more an official search effort can feed off information coming in from around the world.

Searching for a missing aircraft is very different to disaster damage detection. Disasters occur at a specific location and the impact area can be easily tracked or located. In the case of MH370, we were originally facing a mammoth task to find the location of the plane. That task just got even bigger so the more eyes we get on the case, the better.

This story is published courtesy of [The Conversation](#) *(under Creative Commons-Attribution/No derivatives).*

Provided by The Conversation

Citation: Crowdsourcing hunt for MH370 extends to millions of sq miles (2014, March 18) retrieved 3 July 2024 from https://phys.org/news/2014-03-crowdsourcing-mh370-millions-sq-miles.html