



Australian Government

Joint Agency Coordination Centre

MH370 Operational Search Update

15 October 2014

This operational report has been developed to provide regular updates on the progress of the search effort for MH370. Our work will continue to be thorough and methodical, so sometimes weekly progress may seem slow. Please be assured that work is continuing and is aimed at finding MH370 as quickly as possible.

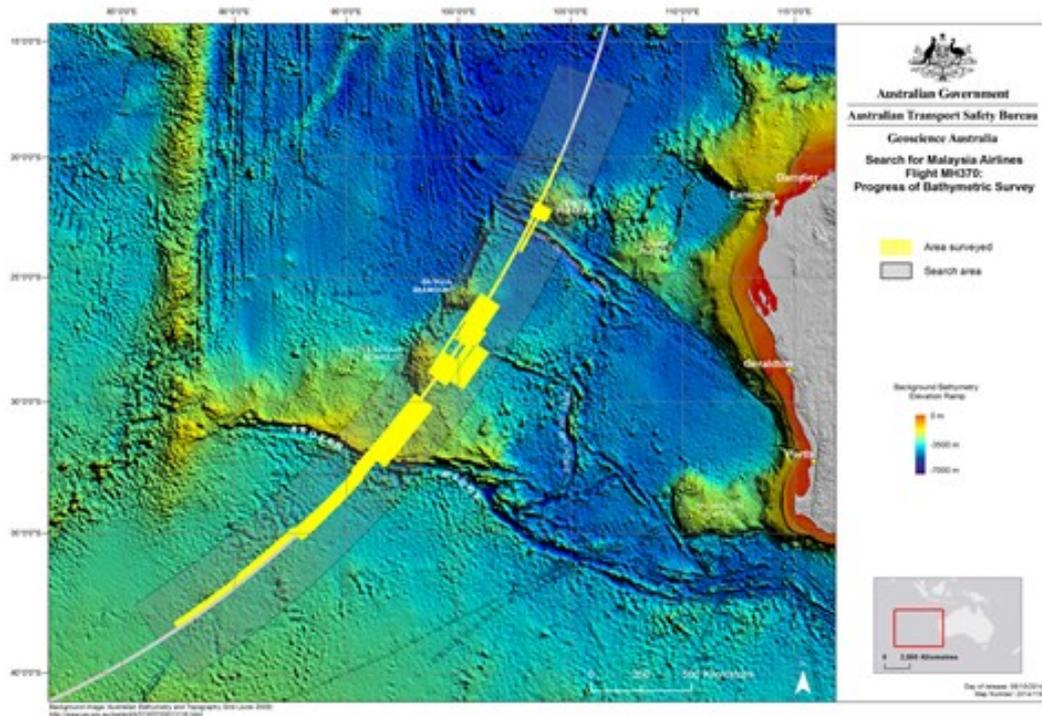
With the arrival of *GO Phoenix* in the search area, there has been much talk about 'the search recommencing'. It is important to note that the search for missing Malaysia Airlines flight MH370 in the southern Indian Ocean has been continuous since March 2014. Whether it was aircraft scouring the surface of the ocean for floating debris or a ship conducting bathymetric survey operations, the effort has not stopped.

Bathymetric survey

The seafloor in the search area has never been mapped in detail. Before the sidescan sonar work to locate MH370 could begin, it was necessary to conduct a bathymetric survey to ensure that the equipment could be operated safely. The survey vessel *Fugro Equator* and the Chinese survey vessel *Zhu Khezhen* collaborated on survey operations, until *Zhu Khezhen* completed her assignment on 30 September and returned to China.

Survey vessels use multibeam sonar to gather data from the seafloor. That data is analysed and mapped by experts at Geoscience Australia, providing knowledge of the terrain that is essential to begin the underwater search.

To date, over 127,000 square kilometres of the wide search area have been analysed and mapped.



The priorities for the search will continue to be reviewed and will change over time.

Ship movements

Fugro Equator continues bathymetric survey operations with favourable weather and sea conditions allowing very good progress to be made over the past seven days. Bathymetric survey operations are projected to continue until the end of October. The vessel will then be mobilised as the third underwater search vessel when it is fitted with a towed side scan sonar vehicle, similar to that of *Fugro Discovery*, on its next port call at Fremantle.

Weather

A weak cold front will cross the area assigned to *Fugro Equator*, followed by a stronger high in its wake. Over the next four days, sea states in the area are expected to range from 1 to 4, providing very good conditions for the survey work.

Underwater search

Vessels involved in the search are being jointly funded by Malaysia and Australia. *Fugro Discovery* and *Fugro Equator*, which is currently being used to survey the search area, are Fugro Survey Pty Ltd vessels, and *GO Phoenix* has equipment and experts provided by Phoenix International.

Over 670 square kilometres of the seafloor have been searched so far.

Ship movements

GO Phoenix continues to conduct underwater search operations. At one point, operations were halted in order to recover the deep tow vehicle and rectify a cable connection fault. Operations were quickly

recommended. The vessel is expected to arrive for its first port call at Fremantle on 21 October to be resupplied.

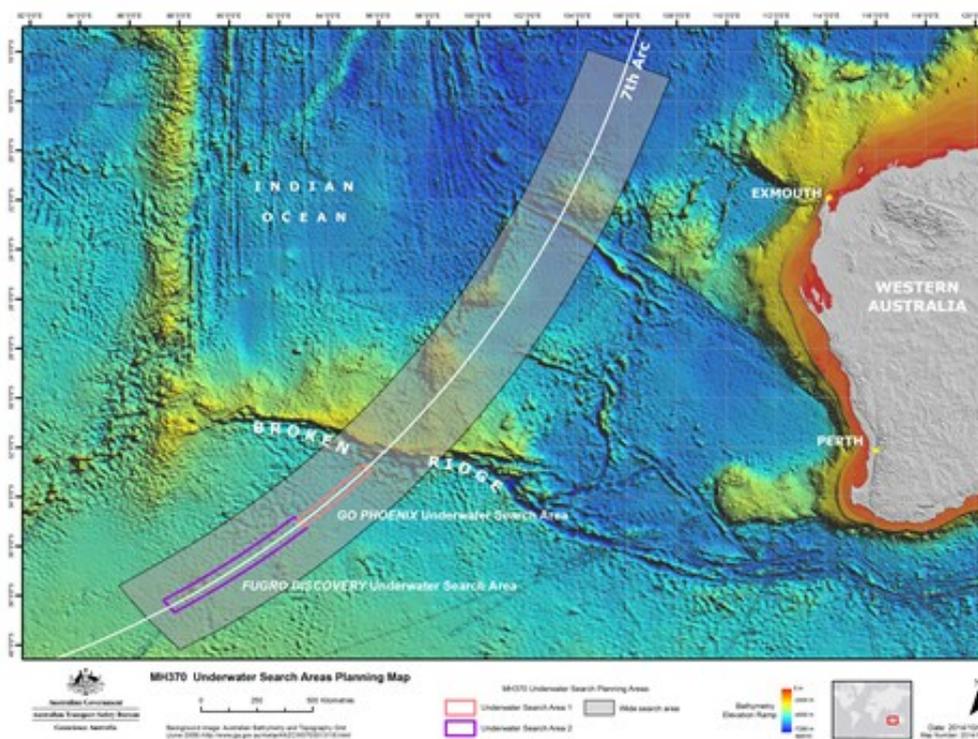
Fugro Discovery arrived at the Port of Fremantle on Sunday 5 October. Over the following days, search equipment and a mission crew were mobilised. On Friday, 10 October, the vessel departed Fremantle to conduct sea trials and equipment testing in the vicinity of Rottnest Island before transiting to the deep-tow calibration site 60 nautical miles southwest of Fremantle for further trials. The vessel returned to Fremantle on 14 October to complete minor reconfiguration work following procedural refinements developed during the sea trials. *Fugro Discovery* sailed early on 15 October for a further 36 hours of sea trials following which the vessel will proceed to the search area with operations estimated to commence on 22 October.

Weather

Over the next four days, sea states in the area assigned to *GO Phoenix* are expected to range from 2 to 4 providing good conditions for the search.

Planning

The ATSB, in consultation with the contracted search experts, completed the initial plan for the underwater search, to be followed and referred to by all parties involved. The plan includes search timings, methods, procedures, safety precautions and search areas. The initial search areas have been allocated to the different vessels.



The first area to be searched has been assigned to *GO Phoenix*. It has already been surveyed to ensure an accurate understanding of the sea floor topography. The second area, assigned to the Fugro vessels, is currently in the process of being surveyed.

Search priorities

From early in the search, analysis has consistently indicated a very high probability of finding the aircraft along a defined arc in the southern Indian Ocean (where the aircraft last communicated with a ground station through a satellite). This is where the aircraft is assessed to have run out of fuel.

Since then, complex, ground-breaking technical analysis of limited communications data and aircraft flight information has been developed and refined. This work has concentrated on determining the point on the seventh arc that the aircraft was most likely to have reached. This will enable a prioritised search effort in areas along the seventh arc.

Recent refinement to the analysis has given greater certainty about when the aircraft turned south into the Indian Ocean and has produced a better understanding of the parameters within which the satellite ground station was operating during the last flight of MH370. The latest analysis indicates that the underwater search should be prioritised further south within the wide search area for the next phase of the search. The ATSB has published *MH370 – Flight Path Analysis Update* to supplement the previously released report, *MH370 – Definition of Underwater Search Areas*, which describes the continuing work.

Inmarsat, which is an integral part of the ATSB-coordinated search efforts, has published an article, 'The Search for MH370', in *The Journal of Navigation*. This article describes the foundations of the satellite communications and some of the flight path reconstruction analysis that has guided the search strategy group's activities. The article is available online at journals.cambridge.org/nav/mh370.

Work is continuing with refinements to the analysis of the satellite communication system messages. This ongoing work may result in changes to the prioritisation and location of search activity within the current search area along the seventh arc.

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