

MH370 preliminary report raises questions on reaction time by authorities
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Map released by Transport Ministry shows the flight paths and likely locations where MH370 may have ended, based on different projections of the aircraft's speed, shown on the map in knots, distance by nautical miles (nm) and altitude (ft). Putrajaya today released the preliminary report on the missing Malaysia Airlines flight MH370 which showed that the search for the aircraft was activated close to four hours after all contact with the plane was lost.

Included in the preliminary report was a document detailing the actions taken by the Malaysian authorities between 1.38am and 6.14am on March 8, the day the Boeing 777-200 vanished. (*See full table below*)

The document showed that the search and rescue operation was activated only after the Kuala Lumpur Air Traffic Control (KL-ATC) had contacted all other ATCs in the region.

The four-hour reaction time for Malaysian authorities to activate the search and rescue operation was one of two gaps that stood out from the report pertaining to the timeline and actions taken.

The other gap was the 17 minutes from when the plane disappeared from radar, that is 1.21am, and when Vietnam's Ho Chi Minh ATC informed KL-ATC that no contact was made by the crew of MH370. This could indicate that the KL-ATC had not noticed the disappearance of the plane, or took no action on it for those 17 critical minutes.

The report, which was sent to the International Civil Aviation Organization last week, indicated that the Kuala Lumpur Rescue Coordination Centre was activated at 5.30am after all efforts to communicate and locate MH370 failed.

The preliminary report, released by the Transport Ministry this evening, included the cargo manifest, recordings of all communication that took place between the cockpit and air traffic control, [maps](#) detailing MH370's flight path and the likely area it ended its journey in the southern Indian Ocean.

Search and rescue operations were immediately carried out in the South China Sea where flight MH370's position was last seen on radar by the KL-ATC.

A [review](#) of data from the military radar revealed a signal from an aircraft, which could possibly be that of MH370, had made an air turn back crossing peninsular Malaysia.

"The aircraft was categorised as friendly by the radar operator and therefore, no further action was taken."

At 8.30am on March 8, the radar data was reviewed in a playback and the information was sent to the Royal Malaysian [Air Force](#) operations room at 9am.

"After further discussion up the chain of command, the military informed me, as the Defence Minister, at 10.30am of MH370's possible air turn back," Hishammuddin said.

"I then informed Najib, who immediately ordered that search and rescue operations be initiated in the Strait of Malacca, along with the South China Sea operations which had started earlier."

Two Malaysian vessels, KD Mahamiru and KD Laksamana Muhamad Amin, were in the Strait of Malacca on patrol duty and reassigned to conduct search and rescue operations.

The last message received by the satellite ground system from the ACARS system on MH370 was at 8.19am.

With the primary analysis of the satellite data and aircraft performance data, the investigation established that flight MH370 flew along either a northern or southern corridor.

The last transmission occurred when the aircraft was on an arc of 40 [degrees from](#) the satellite.

Based on this new development the search area was moved from the South China Sea and the Strait of Malacca to the northern and southern corridors.

The preliminary report indicated that MH370 flew the southern corridor and ended its flight in the southern part of the Indian Ocean, based on Inmarsat satellite data.

Hishammuddin said the preliminary report had been drafted with the cooperation of the United States National Transport Safety Board, the UK Air Accident Investigations Branch and other international aviation agencies.

"Last week, Prime Minister Datuk Seri Najib Razak appointed an internal team of experts to review all the information Putrajaya possessed on MH370."

"The review was conducted with a view to releasing as much of information as possible to the public," Hishammuddin said.

"The principle set by Najib was as long as the release of a particular piece of information did not hamper the probe or search operation, it should be made public."

Hishammuddin said Putrajaya wanted to be as open and transparent as possible, hence the information was released once the internal team concluded its review. – May 1, 2014

The table below is based on recorded communications on direct lines, summarising the events associated to MH370 after the radar blip disappeared until activation of the Rescue Coordination Centre.

Actions taken between 01:38 and 06:14 on Saturday 8 March

Time	Event
01:38:19	Ho Chi Minh first enquired about MH370, informed KL-ATCC that verbal contact was not established with MH370 and radar target was last seen at BITOD.
01:41:21	KL-ATCC informed HCM that after IGARI, MH370 did not return to Lumpur frequency.
01:46:46	HCM queried about MH370 again, stating that radar contact was established over IGARI but there was no verbal contact. Ho Chi Minh advised that the observed radar blip disappeared at waypoint BITOD.
01:50:28	KL-ATCC queried HCM if any contact with MH370. HCM's reply was 'negative'.
01:57:02	HCM informed KL-ATCC that there was officially no contact with MH370 until this time. Attempts on many frequencies and aircraft in the vicinity received no response from MH370.
02:03:48	KL-ATCC queried HCM on status MH370. HCM confirmed there was no radar contact at this time and no verbal communications was established. KL-ATCC relayed the information received from Malaysia Airlines OPS that aircraft was in Cambodian airspace.
02:07:00	HCM queried for confirmation that MH370 was in Phnom Penh FIR. KL-ATCC requested to check further with the supervisor.
02:11:37	HCM queried on status but KL-ATCC has no update.
[02:15] [no voice recording]	(extracted from Watch Supervisor's Log Book) KL-ATCC Watch Supervisor queried Malaysia Airlines OPS who informed that MH370 was able to exchange signals with the flight and flying in Cambodian airspace.

02:18:53 KL-ATCC queried if flight planned routing of MH370 was supposed to enter Cambodian airspace. HCM confirmed that planned route was only through Vietnamese airspace.

HCM had checked and Cambodia advised that it had no information or contact with MH370. HCM confirmed earlier information that radar contact was lost after BITOD and radio contact was never established.

KL-ATCC queried if HCM was taking Radio Failure action but the query didn't seem to be understood by the personnel.

HCM suggested KL-ATCC to call MAS OPS and was advised that it had already been done.

02:34:01 Watch Supervisor KL-ATCC enquired with MAS OPS Centre about communication status with MH370 but the personnel was unsure if the message went through successfully or not.

02:35:03 HCM queried about status of MH370 and was informed that the Watch Supervisor was talking to the company at this time.

02:35:54 MAS OPS Centre informed KL-ATCC MH370 in normal condition based on signal download giving coordinate N14.90000 E109 15 00 at time 1833 UTC.

02:37:36 KL-ATCC relayed to HCM the latitude and longitude as advised by Malaysian Airlines Operations.

02:53:51 MH386 was requested by HCM to try to establish contact with MH370 on Lumpur radar frequency. KL-ATCC then requested MH386 to try on emergency frequencies as well.

[03:30] (extract from Watch Supervisor's Log Book)
(no voice recording) MAS OPS Centre informed KL-ATCC that the flight tracker information was based on flight projection and not reliable for aircraft positioning.

03:30:01 KL-ATCC queried if HCM had checked with next FIR Hainan.

03:56:19 KL-ATCC queried Malaysia Airlines OPS for any latest information or contact with MH370.

04:25:23 HCM queried KL-ATCC on last position that MH370 was in contact with ATC. KL-ATCC queried if any information had been received from Hong

Kong or Beijing.

05:09:18 Singapore queried for information on MH370.

05:20:17 Capt [name redacted] requested for information on MH370. He opined that based on known information, "MH370 never left Malaysian airspace".

05:30 The Watch Supervisor activated the Kuala Lumpur ARCC.

05:41:21 HCM query for any updates.

06:14: KL-ATCC queried HCM if SAR was activated.

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