

German Oceanographers Provide Further Insights into MH370



For the past 16 months an extensive search has been underway for the missing Boeing 777 of Malaysia Airlines (MH370) in the Indian Ocean. Since a piece of debris was discovered a few weeks ago on the island of La Réunion, oceanographers in Kiel, Germany, have been attempting to trace the origin of the flaperon that is presumed to belong to the missing Boeing. The results of their recently completed computer model simulations show that the debris found on La Réunion probably originates from the eastern equatorial Indian Ocean. However, substantial uncertainties are making it difficult to pinpoint the area more specifically.

Flight MH370 that disappeared from radar screens on 8 March 2014 seemed to have been ripped off the face of the Earth. Not even a small piece of the Malaysia Airlines Boeing 777 was discovered despite an intensive search in the eastern Indian Ocean off the coast of Australia. The discovery at the end of July 2015 of a part belonging to an aircraft's wing brought renewed hope. The flaperon was found several thousand kilometres away from the suspected crash site on the island La Réunion. Immediately after the discovery, oceanographers from Kiel started to track back the possible drift of the flaperon within a computer model to narrow down the area of the crash. The results show that the crash site could be found further north than previously thought; but also how difficult it will be to localise the aircraft, even with this new piece of information.

Virtual Particles

Dr. Jonathan Durgadoo and Prof. Dr. Arne Biastoch from GEOMAR Helmholtz Centre for Ocean Research Kiel used an ocean model in combination with observational data. This provides a coherent realistic dataset for their drift analyses to determine the possible origin of the flaperon. To do so, they released virtual particles around La Réunion and computed their trajectories back in time.

From this exercise, a very large region in the eastern equatorial Indian Ocean emerged as the most likely area where the flaperon could originate. It extends from the western coasts of Sumatra and Java, about 6,000 kilometres from La Réunion. Qualitatively, the results correspond to Professor Biastoch's initial estimates, which are confirmed by the complex flow analysis. In addition, all particles originate from a region equatorward of 30°S. These findings show that the ongoing search southwest of Australia might be too far south. However, on the basis of only a single piece of debris, a more precise delimitation of the area is currently not possible. In the coming weeks, in order to further refine their statements, the researchers want to consider other processes, such as wind and waves, which are possibly also relevant to further refining the analysis.

Image: Possible locations of model particles that originate from the eastern Indian Ocean and reach the island of La Réunion 16 months later. The areas with the highest probabilities are colour coded (click for enlargement). Image courtesy: GEOMAR.