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Where is MH370?

Simulations by oceanographers from Kiel provide further insight into the possible location of the crash

01.09.2015 / Kiel. For the past 16 months extensive search has been underway for the missing Boeing 777 of Malaysia Airlines (MH370) in the Indian Ocean. After a piece of debris was discovered a few weeks ago on the island of La Réunion, Kiel oceanographers have attempted to trace the origin of the flaperon that presumably belongs to the missing Boeing. The results of their recently completed model simulations show that the debris found on La Réunion probably originates from the eastern equatorial Indian Ocean. However, the uncertainties are still very large.

Flight MH370 that disappeared from radar screens on March 8, 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 1,000 kilometres away from the suspected crash site on the island La Réunion. Meanwhile, it is almost certain that this part belongs to MH370. Will the flaperon be the key to localize the aircraft? Immediately after the discovery, Kiel oceanographers started to track back the possible drift of the flaperon in order to further narrow down the area of the crash. The results show how difficult it will be to localize the aircraft, even with this new piece of information,

Dr. Jonathan Durgadoo and Prof. Dr. Arne Biastoch from GEOMAR Helmholtz Centre for Ocean Research Kiel used a high-resolution ocean model assimilated with observational data for their drift analyses to determine the possible origin of the flaperon. "Of course it does not make much sense just to track only a single particle within the model," Dr. Durgadoo explains. "We have traced back almost two million 'virtual' particles over a period of 16 months," Durgadoo continues. "For each month back, we subsequently calculated the probable region of the particles positions."

From this exercise, a very large region in the eastern equatorial Indian Ocean emerged as the most likely area. It extends from the western coasts of Sumatra and Java, about 6,000 kilometers from La Réunion. "Qualitatively, the results correspond to my initial estimates, they are now confirmed by the complex flow analysis", says Professor Biastoch. In addition, all particles originate from a region equatorward of 30°S, the northernmost part of the current search area. "Our findings show that the ongoing search might be too far south at the moment," Dr. Durgadoo comments. However, he admits that since the database is still very limited, a more precise delimitation of the area is currently not possible. "Finding more pieces of MH370 debris would be necessary in order to make more precise statements," Professor Biastoch summarizes. 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 for the drifting.

Links:

www.geomar.de GEOMAR Helmholtz Centre for Ocean Research Kiel

<http://www.mercator-ocean.fr/eng> Website of the operational ocean model Mercator

Images:

Images are available for download at www.geomar.de/n3973

An animation is available under:

http://www.geomar.de/fileadmin/content/service/presse/Pressemitteilungen/2015/pm_MH370_movi_e_en.mp4

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