

PRESS RELEASE

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Sea level rise key to Galapagos evolution

A new study has revealed further insight into the evolution of land-dwelling animals in the Galapagos Islands. The research, which was published earlier this week, found that changes in sea level over the past 700,000 years could help to explain striking patterns in the distribution and evolution of some of the archipelago's land fauna.

By analysing changes in sea level around the Galapagos Islands, authors Jason Ali and Jonathan Aitchison discovered that during periods of extremely low sea level some islands would have become connected. This means that animals previously isolated from each other would have had the freedom to move between islands until sea levels once again separated them.

The researchers looked at several Galapagos animal groups including racer snakes, lava lizards and land iguanas and found that these connection episodes could help to explain the distribution and composition of species across islands.

Ian Dunn, Chief Executive of the UK's Galapagos Conservation Trust said "That such a seemingly well studied archipelago can still be presenting us with new and surprising findings is a perfect example of just how extraordinary the Galapagos Islands are. This new research has not only provided us with new insights into Galapagos' history but can now be applied to other island ecosystems to reassess their evolutionary biology."

In the publication the authors also say that "Our investigation carries a fascinating twist, because it brings together two unrelated scientific hypotheses that were both proposed by [Charles] Darwin, namely 'natural selection' and 'oceanic island subsidence'."

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Notes to editors:

- The paper: [*Exploring the combined role of eustasy and oceanic island thermal subsidence in shaping biodiversity on the Galapagos*](#) by Jason R. Ali and Jonathan C. Aitchison is published in the Journal of Biogeography on Wednesday 23 April 2014.
- Authors used paleogeographical modelling to determine that in the recent geological past, a sizeable region within the Galapagos chain must have experienced rapid, significant changes in its geography as a result of major shifts in local relative sea level periodically connecting and then isolating islands. This might explain striking patterns in the distribution and composition of the archipelago's land fauna. These insights provide a platform for future studies predicting the ages of subpopulation separations, which should correspond to the sea-level rises that followed each of the lows. The oscillating geography mechanism described in the paper may provide a new lens to view biological

evolution on a number of other island chains, including the Maldives, the Canaries and Cape Verde.

- **Jason R. Ali** is an Associate Professor in the Department of Earth Sciences at the University of Hong Kong.
- **Jonathan C. Aitchison** is a Professor in the School of Geosciences at the University of Sydney.
- The **Galapagos Conservation Trust** (GCT) is the only UK charity dedicated exclusively to supporting Galapagos. Established in 1995 at the Royal Society, GCT generates income for numerous projects to protect the unique biodiversity of the Islands and meet the challenges of how the human population can live in balance with the unique environment and wildlife of Galapagos. To find out more visit their website www.savegalapagos.org.

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