



# The HMS Beagle Trust • News Release

23 October 2008

## NASA and HMS Beagle Trust Sign Space Act Agreement

October 10, 2008: NASA and the HMS Beagle Trust sign a Space Act Agreement for cooperation which will encompass three areas: joint science, educational outreach and public affairs.

Scientists, teachers and students sailing aboard the 90-foot ship will collaborate with astronauts aboard the International Space Station (ISS) to investigate the biology of plankton blooms, coral reefs and other ocean surface and terrestrial ecosystems as the new Beagle circles the world recreating Darwin's 1831-36 voyage aboard HMS Beagle, which he called "the most important event" in his life and which led to his later discovery of a mechanism for evolution.

The Beagle Project will use the space-sea project to engage young and old alike in science, promoting scientific literacy and raising awareness of climate change and other human-induced environmental changes.

The trans-atmospheric collaboration was initiated when astronaut and spaceflight physician Michael R Barratt read about the HMS Beagle Project in Science magazine. Barratt, who will be on the ISS in 2009 has secured NASA agreement to develop the program which will see astronauts aboard the ISS working with the crew on the new Beagle during their time in orbit.

"Space stations, square riggers and marine biology: science does not get more exciting than this and we need to get the enquiring young minds of today excited by science. Almost everything we take for granted today, a scientist was involved somewhere in its development and I think the ISS circling the world while a scientific square rigger with Beagle's pedigree rounds Cape Horn, making new discoveries at sea and on land, streaming footage back to labs and classrooms will be a great way to welcome young minds into the excitement and adventure of science," Michael Barratt said.

A modernized, seagoing rebuild of HMS Beagle will be built in Milford Haven, Pembrokeshire starting in 2009 at a cost of £5 million. She will carry modern scientific equipment aboard and will be crewed by science students, researchers and communicators.

Using satellite link-ups, students in classrooms and laboratories will be able to follow the voyage, and interact with scientists as they apply the tools and techniques of modern science in Darwin's footsteps ashore and at sea. From space, astronauts will use the ISS's high resolution imaging to photograph the Beagle and fix her position as she sails into plankton blooms and takes seawater samples for chemical and biological analysis. Samples will be analysed aboard by marine biologists and also

HMS Beagle Press Release p.1

The HMS Beagle Trust is an educational charity, no. 1126192

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processed and shipped to labs for DNA sequencing and comparison to libraries of known marine organisms using DNA barcoding and metagenomics.

Dr Karen James, the HMS Beagle Project's Director for science said, "We have explored more of the moon than we have of Earth's oceans, and that's still true even after centuries of ocean exploration including the original Beagle voyages. Barcoding and metagenomics can help us discover new species and monitor biological communities as they respond to environmental change such as climate change and ocean acidification."

**Ends**

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**Notes:**

DNA barcoding is the use of a short segment of an organism's genome to identify it by comparing its sequence against collections of known reference specimens. Scientists aboard the new Beagle will be contributing specimens and sequences to help build these reference collections. Metagenomics is the simultaneous study of the genomes of many organisms in a mixed sample. DNA from an ocean water sample containing a mixture of different species is sequenced and reconstructed by computers into genes and genomes of individual species. The power of metagenomics lies in its ability to detect species that have been missed previously due to their inability to grow under laboratory culture conditions.

Illustrations of the outline plans and the original HMS Beagle under sail will be available from <http://www.thebeagleproject.com/media>

HMS Beagle Press Release p.2

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