

## **Development of a movable laboratory for exploring hadal trenches**

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### **Innovative Ideas**

Exploring hadal trenches remains to be the last frontier in oceans and it needs technical support for the exploration. Based on a comprehensive survey of currently available equipment, we proposed to develop a movable laboratory which includes a dedicated mothership, 3 full ocean depth (FOD) landers, a hybrid autonomous and remotely operated vehicle (ARV) and a human occupied vehicle (HOV). Essentially there are two challenges for the development of the movable laboratory, the technology challenge and the funding challenge. To overcome the technology challenge, a staged approach from landers to ARV to HOV is adopted. To overcome the funding challenge, a new funding mechanism called “governmental support + private investment” was first implemented for the first time in China.

### **Current Progress**

Four years practice proves that the project plan is effective and now the first phase of the movable laboratory excluding the HOV has been finished. In this presentation, we will show the latest progress on the development of the movable laboratory including the sea trials of the landers and ARV to the Challenger Deep and the New Britain Trench, completed from December 2016 to February 2017.