

# FUNDING PROGRAM FOR NEXT GENERATION WORLD-LEADING RESEARCHERS

**Project Title:** Reconstructions of the late Quaternary Palaeoclimate

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## 1. Background of research

It is now projected that ongoing global warming produce 2 degreeC or higher global temperature world by 2100 AD. Our understanding for climate variability have been improved due to rapid progresses of climate modeling, though relatively large uncertainties are still remained to project future changes. Validations of climate models have been employed short term observation yet the durations of those observational data are not necessary sufficient.

## 2. Research objectives

The project is aiming for obtaining high resolution paleoclimate and paleoceanographic data covering within and beyond the period of which direct observational data is available using geochemical proxies for corals, sediments, tree-rings and so forth. The data will be used for validating outputs of palaeoclimate model simulations. The outcomes of this project is hoped to be distributed among the modeling community to be used as bench mark.

## 3. Research characteristics (incl. originality and creativity)

Surface temperature of the earth has risen at least 2 degreeC since the last glacial maximum (LGM: around 20,000 years ago). Samples used for this project will be covering this interval and they have been collected by the proponent of this project joining the international collaborative projects such as Integrated Ocean Drilling Program (IODP). High resolution data will be analyzed by currently running and newly installed mass spectrometers. Comparisons with model outputs by discussions with modelers will be conducted constantly since they are belonging to the same institution.

## 4. Anticipated effects and future applications of research

One of the major uncertainties of climate projection using current climate models is projecting hydrological cycles. Better projections would be available for low-to mid-latitude climate variations, such as ENSO, Monsoon and others, if the data obtained from the current project will be used to validate climate model.