UTRIP 2027 Host Laboratory Information

Department	Name and Title of Hosting Faculty Member	Laboratory Website	Research Topic & Research Description
Earth & Planetary Science	Satoshi IDE (Professor)	http://www-solid.eps.s.u-tokyo.ac.jp/~ide/en/	Earthquake is understood as the interaction between fast process, which generate strong seismic waves instantaneously, and slow process, which produce little shaking but large deformations over longer durations. This study aims to detect and characterize the variability of tectonic tremors, a type of slow earthquake. Tectonic tremors have been observed in many regions around the Pacific Rim, and are thought to play a role in preparing the conditions for great earthquakes. However, detection methods for tremors still need improvement, and the underlying mechanical deformation processes that generate the tremor signals remain poorly understood. To address these issues, this research will focus on improving and applying methods for detecting tremors in continuous seismic waveform data, as well as refining approaches for inferring the associated deformation processes. If time permits, the study will also explore the relationship between these slow events and fast (great) earthquakes.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Continuum mechanics, Elastic wave theory, Programming (Python)
			2) Required major field(s) of study Geophysics, Physics, Earthquake Engineering
			3) Academic background or research project experience to be considered during selection Seismological observation and data analysis are preferable, but not necessary
			4) Selection and evaluation criteria (if any) None
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Earth & Planetary Science	Katsuro KATSUMATA (Professor)	https://www-aos.eps.s.u-tokyo.ac.jp/~katsumata/index-e.html	Since seawater is opaque to radio waves, remote sensing of interior ocean is virtually impossible. Ship-based observation has been used to investigate subsurface properties of the ocean such as temperature, salinity, dissolved oxygen, etc. Using these hydrographic data accumulated over decades from the 1980s, we can study decadal variations of the ocean. For this project, students choose a section or two and study decadal variabilities observed over years. We endeavour to intepret these changes in terms of physics behind the phenomena.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Geophysical fluid dynamics. The main tool of the project is computer. It is expected the student is familiar with (at least) one of the following computer languages; Matlab, Python, Perl, Ruby, C, FORTRAN, and Haskell.
			2) Required major field(s) of study Physics including fluid mechanics and Mathematics
			3) Academic background or research project experience to be considered during selection Some experience in data processing (not limited to geophysics though).
			4) Selection and evaluation criteria (if any) None
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Earth & Planetary Science	Yasuyuki KANO (Associate Professor)	https://researchmap.jp/kano_yasuyuki?lang=en https://www.u-tokyo.ac.jp/focus/en/people/people001860_00001.html	Historical earthquakes: This research focuses on past earthquakes using primarily historical materials and written records. Macroseismic intensity distributions including structural damage enable determination of the timing, location, and characteristics of historical earthquakes. Based on historical seismicity patterns, assessments of future earthquake potential can be made. The study areas include Japan and other regions of the world where historical documentation is accessible. Legacy data such as old seismograms may also be utilized.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Basic knowledge in one or more related fields such as seismology, history, and geography
			2) Required major field(s) of study One or more of the following: seismology, history, geography, or related fields
			3) Academic background or research project experience to be considered during selection None
			4) Selection and evaluation criteria (if any) None