

**CLIVAR/JAMSTEC Workshop on the Kuroshio Current and Extension System:
Theory, Observations, and Ocean Climate Modelling**

DAY 1

8:30-9:00 Registration

Opening Session Chair: Yoshiki Komuro (JAMSTEC)

9:00-9:05 Official Workshop Opening (Masao Fukasawa, Associate executive director, JAMSTEC)

9:05-9:10 Workshop Welcome (Yoshiki Komuro, JAMSTEC)

9:10-9:20 Workshop background and expected outcomes (Simon Marsland, CSIRO)

Session 1: keynote talks Chair: Yoshiki Komuro (JAMSTEC)

9:20-9:50 Bo Qiu (University of Hawaii) Keynote speech: Decadal variability, impact, and prediction of the Kuroshio Extension system

9:50-10:20 Ichiro Yasuda (Univ. Tokyo) Keynote speech: Variability and mixing in the Kuroshio and impact on ecosystem and climate

10:20-10:50 BREAK

Session 2: Observation of the Kuroshio and Kuroshio extension Chair: Xiaopei Lin (Physical Oceanography Lab, Ocean University of China)

10:50-11:20 Meghan Cronin (NOAA PMEL) Applying diffusivity from the KEO mixed layer heat balance to determine the biological sinks of organic and inorganic carbon

11:20-11:50 Toshio Suga (JAMSTEC) The region around the Kuroshio Extension as a ventilator of the North Pacific pycnocline: a review

11:50-12:20 Kaoru Ichikawa (Kyushu Univ.) Variability of the Kuroshio in the upstream region

12:20-12:35 Yoshinori Sasaki (Hokkaido Univ.) Decadal variability of the Kuroshio Extension jet and its relation to coastal sea level along Japan

12:35-12:50 Takeyoshi Nagai (Tokyo University of Marine Science and Technology) Evidence of enhanced double-diffusive convection below the main stream of the Kuroshio Extension

12:50-14:30 LUNCH BREAK/Poster session (at foyer, next to the auditorium)

Session 3: Ocean Dynamics in the Kuroshio and KE, including multi-scale ocean processes

Chair: Tatsuo Suzuki (JAMSTEC)

14:30-15:00 Xiaopei Lin (Physical Oceanography Lab, Ocean University of China) The Kuroshio decadal variability and its climate impact

15:00-15:30 Fangli Qiao (First Institute of Oceanography) The Kuroshio and its effects on regional climate

15:30-16:00 Hideyuki Nakano (Metrological Research Institute) Water mass transport associated with the oceanic fronts in the northwestern Pacific Ocean

16:00-16:15 Naoki Sato (Tokyo Gakugei University/JAMSTEC) Contribution of sea-surface wind curl to the maintenance of the SST gradient along the upstream Kuroshio Extension in early summer

16:15-16:45 BREAK

Session 3 (continued)

16:45-17:00 Bunmei Taguchi (Application Laboratory, JAMSTEC) Low-frequency Variability of Upper Ocean Heat Content Associated with Meridional Shifts of the North Pacific Western Boundary Current Extensions

17:00-17:15 Kunihiro Aoki (Department of Earth and Planetary Science, Graduate School of Science, U. Tokyo) The momentum balance over the Kuroshio Extension

17:15-17:30 Mio Terada (Graduate School of Science, Hokkaido Univ.) Regional Sea Level Rise over the North western Pacific until the end of 23rd century in CMIP5 models

17:30-18:15 Discussion Discussion lead: Bo Qiu (University of Hawaii)

18:30- Welcome Reception

End of the DAY 1

DAY 2

Session 4: Development of ocean modeling: high-resolution modeling and reanalysis Chair: Simon Marsland (CSIRO)

9:00-9:30 Masao Kurogi (JAMSTEC) Effects of deep bottom topography on the sea surface height field in the Kuroshio Extension region studied by a nested-grid OGCM

9:30-10:00 Tsuyoshi Wakamatsu (JAMSTEC) Observability of long term Kuroshio variability through four dimensional ocean data assimilation

10:00-10:15 Helene Hewitt (Met Office) The impact of eddy resolving resolution in coupled climate models

10:15-10:30 Simona Masina (Centro Euro-Mediterraneo sui Cambiamenti Climatici) Analysis of the Kuroshio Extension decadal variability as simulated by an eddy-permitting model

10:30-10:45 Eric Chassignet (Florida State University) Impact of horizontal resolution (1/12 to 1/50 degree) on Gulf Stream separation and penetration

10:45-11:15 BREAK

Session 5: Air-sea interaction in the Kuroshio and Kuroshio extension and its climate impact Chair: Shoshiro Minobe (Graduate School of Science, Hokkido Univ.)

11:15-11:45 Shoshiro Minobe (Graduate School of Science, Hokkido Univ.) Climate Dynamics Panel and mid-latitude ocean's influence on the atmosphere

11:45-12:15 Ping Chang (Texas A&M Univ.) Ocean Mesoscale Eddy-Atmosphere (OME-A) Feedback: Kuroshio Eddies, Pacific Storm Track and Climate Variability

12:15-12:30 Sergey Gulev (IORAS) Cyclone activity and its interaction with the Kuroshio current system

12:30-12:45 Niklas Schneider (University of Hawaii) Characterization of frontal air-sea interaction by spectral transfer functions

12:45-13:45 Lunch break/Photo session

Session 5 (continued)

13:45-14:15 Justin Small (NCAR) Atmospheric variability associated with western boundary currents in high-resolution climate models

14:15-14:30 Hisashi Nakamura (RCAST, Univ. Tokyo) Impacts of frontal SST gradients in the Kuroshio-Oyashio Extension on the atmosphere as revealed in a new Japanese reanalysis, a legacy of the "hot-spot" project

14:30-14:45 Masami Nonaka (JAMSTEC) Dynamical response of the North Pacific Ocean to the tropical variability and its decadal modulation

14:45-15:00 Tomoki Tozuka (Univ. Tokyo) Role of mixed layer depth in surface frontogenesis: the Kuroshio Extension front

15:00-15:15 Stuart Bishop (North Carolina State University) Bjerknes-like compensation in the wintertime North Pacific

15:15-15:30 Akira Kuwano-Yoshida (JAMSTEC) Storm track response to SST front in the northwestern Pacific region in an AGCM

15:30-15:45 Ryusuke Masunaga (Research Center for Advanced Science and Technology, Univ. Tokyo) Interannual modulations of mesoscale oceanic imprints on the wintertime atmospheric boundary layer under the changing dynamical regimes of the Kuroshio Extension

15:45-16:00 Hidenori Aiki (Institute for Space-Earth Environment Research, Nagoya University) Wind stress for ocean circulation as given by the dissipation rate of surface waves

16:00-16:30 BREAK

Session 6: Marine ecosystems in the Kuroshio and Kuroshio Extension Chair: Ichiro Yasuda (Univ. Tokyo)

16:30-17:00 Hiroaki Saito (Atmosphere and Ocean Research Institute, Univ. Tokyo) Kuroshio Paradox: High fisheries production in oligotrophic Kuroshio ecosystem

17:00-17:15 Keith Rodgers (AOS Program, Princeton Univ.) Time of Emergence for acidification and de-oxygenation in a water mass framework

17:15-17:30 Eitarou Oka (Atmosphere and Ocean Research Institute, Univ. Tokyo) Decadal variability of Subtropical Mode Water subduction and its impact on biogeochemistry

17:30-18:15 Discussion Discussion lead: Gokhan Danabasoglu (NCAR)

18:15 Adjourn

End of the DAY 2