

W8 POC Workshop

Exploring the predictability and mechanisms of Pacific low frequency variability beyond inter-annual time scales

Co-sponsored by CLIVAR

Co-Convenors: *Emanuele Di Lorenzo (U.S.A.) and Shoshiro Minobe (Japan)*

Understanding the dynamics that control climate variability in the Pacific basin is essential for exploring the degree of predictability of the ocean-atmosphere and sea-ice climate systems of the North Pacific. The goal of this workshop is to improve the conceptual and quantitative frameworks used by the PICES community to interpret low-frequency climate variability in the Pacific basin, ranging from interannual to multi-decadal timescales. Contributions are invited on a broad range of topics including: 1) studies that link regional to basin scale dynamics; 2) investigations of «regime shift», specifically the extent to which sharp transitions in the climate system are predictable and connected with low-frequency variations in the ocean-atmosphere and sea-ice systems; (3) studies that separate the stochastic and deterministic components of low-frequency climate fluctuations; (4) analysis of long-term observations collected in regional environments across the Pacific, specifically their relationship to large-scale climate processes as opposed to local-scale dynamics; (5) climate change and how it may impact the statistics of Pacific climate (*e.g.*, frequency of «regime shifts»); and (6) more generally studies that propose new mechanisms underlying low-frequency Pacific climate variability.

Day 1, Saturday, October 24 (9:00-18:00)

Topic 1: Pacific Large-scale dynamics and variability

- 9:00 **Sumant Nigam and Bin Guan (Invited)**
Ocean-atmosphere structure of Pacific decadal variability (W8-5931)
- 9:25 **Curtis Deutsch and Taka Ito (Invited)**
Oxygen variability in the North Pacific (W8-5799)
- 9:50 **Sang-Wook Yeh, Yune-Jung Kang, Yign Noh and Arthur J. Miller**
Characteristics in the North Pacific mean SST and its variability in climate transition periods (W8-5901)
- 10:10 **Skip McKinnell and Nate Mantua**
Regimelettes – PDO variability in the 21st Century (W8-5882)
- 10:30 *Coffee / tea break*
- 10:50 **Muyin Wang, James E. Overland and Nicholas A. Bond**
A means for reducing projection uncertainty of climate models on regional scale (W8-5846)

Topic 2: Tropical / Extratropical connections

- 11:10 **Lixin Wu (Invited)**
A unified teleconnection mechanism between extratropical and tropical oceans (W8-5605)
- 11:35 **Michael Alexander, Daniel J. Vimont, Ping Chang and James Scott (Invited)**
The impact of extratropical atmospheric variability on the tropical Pacific: Testing the seasonal footprinting mechanism (W8-5648)
- 12:00 **Daniel J. Vimont (Invited)**
The role of thermodynamic coupling in connecting subtropical and tropical Pacific climate variations (W8-5762)
- 12:25 *Lunch*

14:00 **Xiaohui Tang, Ping Chang and Fan Wang**
Influence of reducing weather noise on ENSO prediction (W8-5741)

Topic 3: Western North Pacific dynamics and variability

14:20 **Bo Qiu, Shuiming Chen and Niklas Schneider (Invited)**
Forced versus intrinsic variability of the Kuroshio Extension system on the decadal timescales (W8-5657)

14:45 **Shoshiro Minobe, Jiaxu Zhang and Miho Urasawa**
Kuroshio Extension variability during the last 50-years and its predictability (W8-5829)

15:05 **Rong-shuo Cai, Qi-long Zhang and Hong-jian Tan**
The long-term transport variation of Kuroshio and its adjacent currents in the western North Pacific Ocean (W8-5554)

15:25 *Coffee / tea break*

15:50 **Poster viewing time**

16:20 **Masami Nonaka, Hisashi Nakamura, Bunmei Taguchi, Youichi Tanimoto and Hideharu Sasaki (Invited)**
Decadal variability in the oceanic frontal zones in the western North Pacific Ocean (W8-5796)

16:45 **Elena I. Ustinova and Yury D. Sorokin**
Low-frequency fluctuations of thermal conditions in the Far-Eastern Seas and large-scale climate processes (W8-5767)

17:05 **In-Seong Han, Young-Sang Suh, Jae-Dong Hwang and Joon-Soo Lee**
Long-term change of thermal structure in the surface layer due to wind-induced conditions around the Korean Peninsula (W8-5837)

17:25 **Konstantin A. Rogachev and Natalia V. Shlyk**
Surface freshening and mid-depth warming in the Pacific Western Subarctic since 1950s (W8-5518)

17:45 **Discussion**

18:00 *Workshop ends*

Day 2, Sunday, October 25 (9:00-12:30)

Topic 4: Air Sea interaction and coupled structures

9:00 **Bunmei Taguchi, Hisashi Nakamura, Masami Nonaka, Nobumasa Komori, Akira Kuwano-Yoshida, Hideharu Sasaki, Koutarou Takaya and Shang-Ping Xie (Invited)**
Decadal variability of the Kuroshio/Oyashio Extension fronts and their atmospheric influences (W8-5755)

9:25 **Niklas Schneider, Yoshinori Sasaki, Axel Lauer, Bo Qiu, Arthur J. Miller and Detlef Stammer**
Extratropical ocean to atmosphere coupling via atmospheric Ekman pumping (W8-5938)

Topic 5: Discussion/Synthesis

9:45 **Emanuele Di Lorenzo, Niklas Schneider, Kim M. Cobb, Jason Furtado and Michael Alexander**
ENSO and the North Pacific Gyre Oscillation: An integrated view of Pacific decadal dynamics (W8-5586)

10:05 **Arthur J. Miller, Emanuele Di Lorenzo, Shoshiro Minobe and Niklas Schneider**
North Pacific decadal variability: Current understanding and unresolved issues (W8-5820)