Ocean Analysis and TAO Array

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Tropical Pacific Observing System

# of Daily Temp. Prof. per Month in Eq. Pacific (8S–8N)
TAO/TRITON (red), ARGO (green), XBT (blue), ALL (black)
Tropical Pacific Observing System 2020 (TPOS 2020) Workshop

• Sponsors
  – Global Climate Observing System (GCOS)
  – Global Ocean Observing System (GOOS)
  – NOAA
  – JAMSTEC
  – Korean Institute of Ocean Science and Technology (KIOST)
  – State Oceanic Administration (SOA)
Workshop Structure

- Terms of Reference focused on requirements for the TPOS
- 65 attendees from 30 institutions and 13 countries
- 14 invited talks on observing system requirements and implementation, based on whitepapers
- 9 invited talks from agencies with interest in the Tropical Pacific Region
- Discussion sessions, plus closed sessions for review committee
- Report and Recommendations to be delivered to the sponsors.
Goals for TPOS 2020

- To refine and adjust TPOS to monitor, observe, define the state of ENSO and advance scientific understanding of its causes

- To determine the most efficient and effective method to support observation systems for ocean and weather and climate services of high societal and economic utility, including underpinning research

- To advance/refine the degree to which the tropical Pacific (physical and biogeochemical) and its climate impacts are predictable

- To determine how inter-annual to multi-decadal variability and human activities impact the relation between marine biogeochemistry and biology to carbon budgets, food security and biodiversity’
Recommendations: Addressing gaps, new Requirements, Formation of Task Teams

- It is recommended that 4 task teams are set up focused on defining requirements
  - Evaluating broad-scale ocean observing system
  - Diurnal variability
  - Western boundary currents
  - Modelling, assimilation, and synthesis...to assess impact of TPOS on modeling and prediction systems
• Ocean reanalysis inter-comparison activities
Some Questions of Relevance to WGSIP

• In the context of seasonal prediction systems
  – What is the contribution of tropical Pacific observing system to prediction skill?
  – What is the relative contribution of observations over different part of the basin?
  – What is the role of SST observations and coupling in providing sub-surface information?
  – Understanding performance of ENSO predictions?
  – Initialization and perturbation generation
Comparison of Various ODA

Anomalous Temperature (°C) Averaged in 1S–1N: JAN 2014

[Image showing temperature anomalies for NCEP, JMA, ECMWF, and ENS. Mean (shade) & Speed (contour)]

(http://origin.cpc.ncep.noaa.gov/products/GODAS/multiora_body.html)
Influence of Specifying SSTs

• Recommend that WGSIP endorse efforts related to
  – Sustaining tropical Pacific observing system
  – TPOS task team #4
  – Ocean analysis inter-comparison efforts