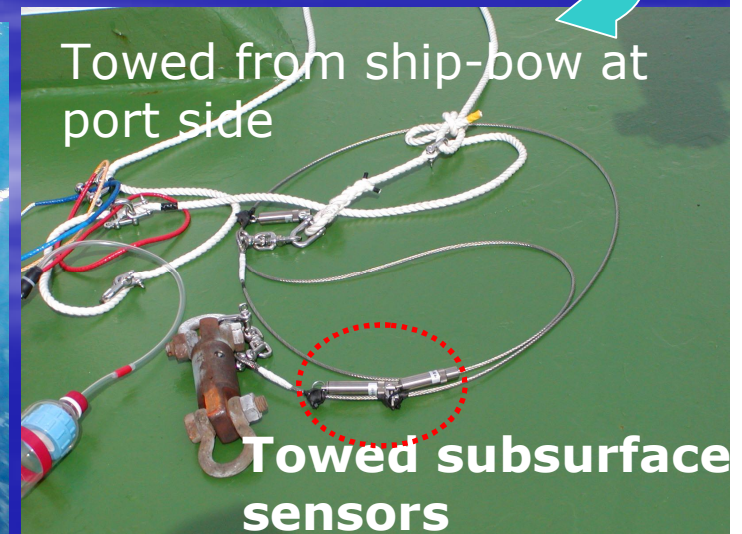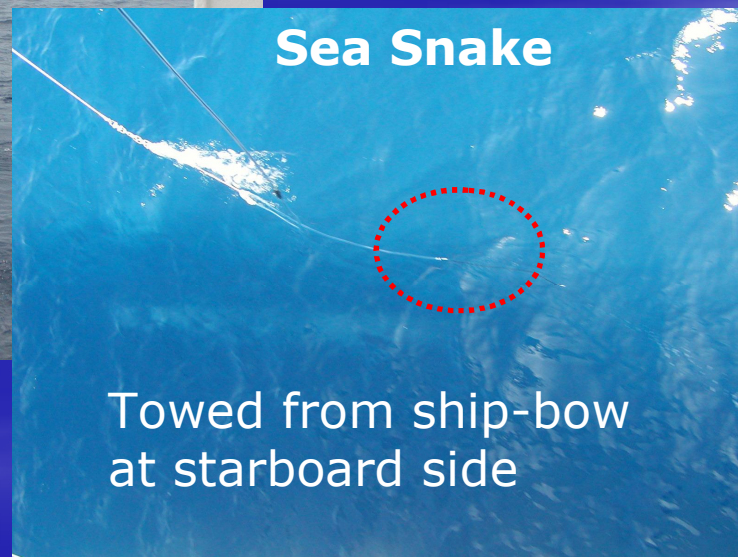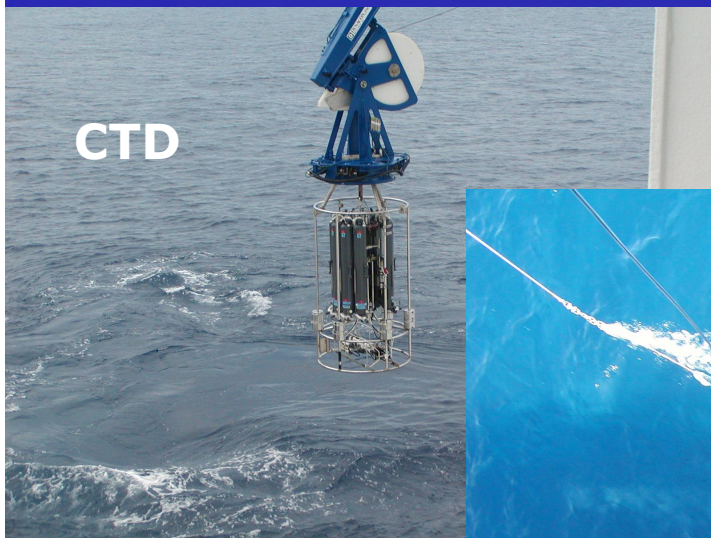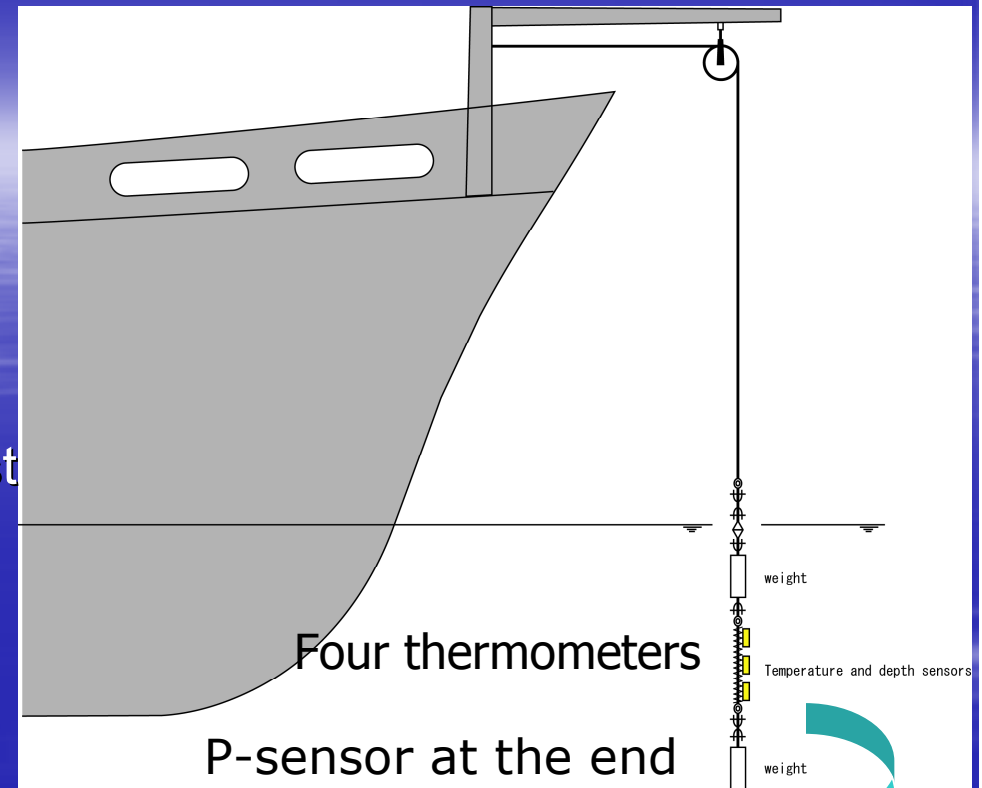# Observation and modeling of Near-Surface Temperature During MISMO

Measurement

- Sea snake : 0-0.1meter
- CTD   : 4 meter-
- 0-4m measurement is necessary
    Period-1: 10/28-11/4
    Period-2: 11/4-11/10
    Period-3: 11/11-11/20 Fail by lost of sensors

CTD

Four thermometers

P-sensor at the end

weight

Temperature and depth sensors

weight

Sea Snake

Towed from ship-bow at starboard side

Towed from ship-bow at port side

Towed subsurface sensors

Process of the thermistor-chain data (0~4 m depth)

- The depths of the four thermometers were estimated by using pressure sensor data.

- Erroneous values were eliminated subjectively.

- The temperature data were averaged in bins of 0.5-m depth and 30 minutes. (original sampling interval was 1 min.)

- If there was no observation in a bin, the temperature was obtained by temporal interpolation.

1-D ocean mixed layer model

- Model Description

  Turbulence closure 1-D model by Noh (1996)
  Vertical resolution : 0.5m
  Vertical range : 0-100m

- Experiments

  Initialized by MISMO-CTD data
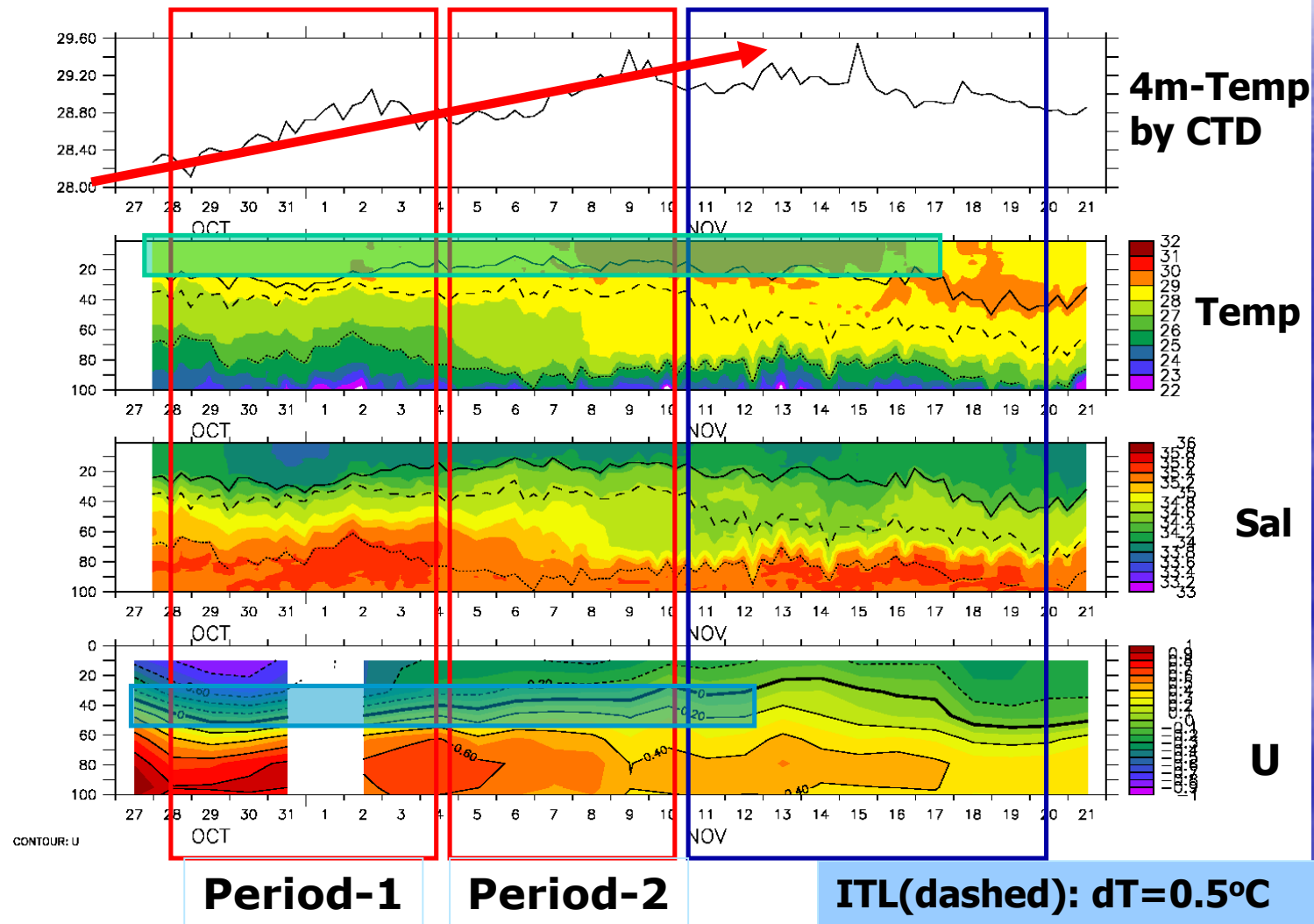 Forced by measured surface fluxes (COARE version 2.6) in Period-1 and Period-2.

- Analysis

  Comparison with observation
  Impact of vertical resolution

  by Drs. Ando and Qin

Temperature, salinity and zonal current conditions during MISMO

4m-Temp by CTD

Temp

Sal

U

CONTOUR: U

Period-1   **Period-2**

ITL(dashed): dT=0.5°C
MLD (solid): Density difference corresponds to dT below 10meter depth

Comparison with observation
0-3m depth temperature

Period-1: 28-Oct to 04-Nov
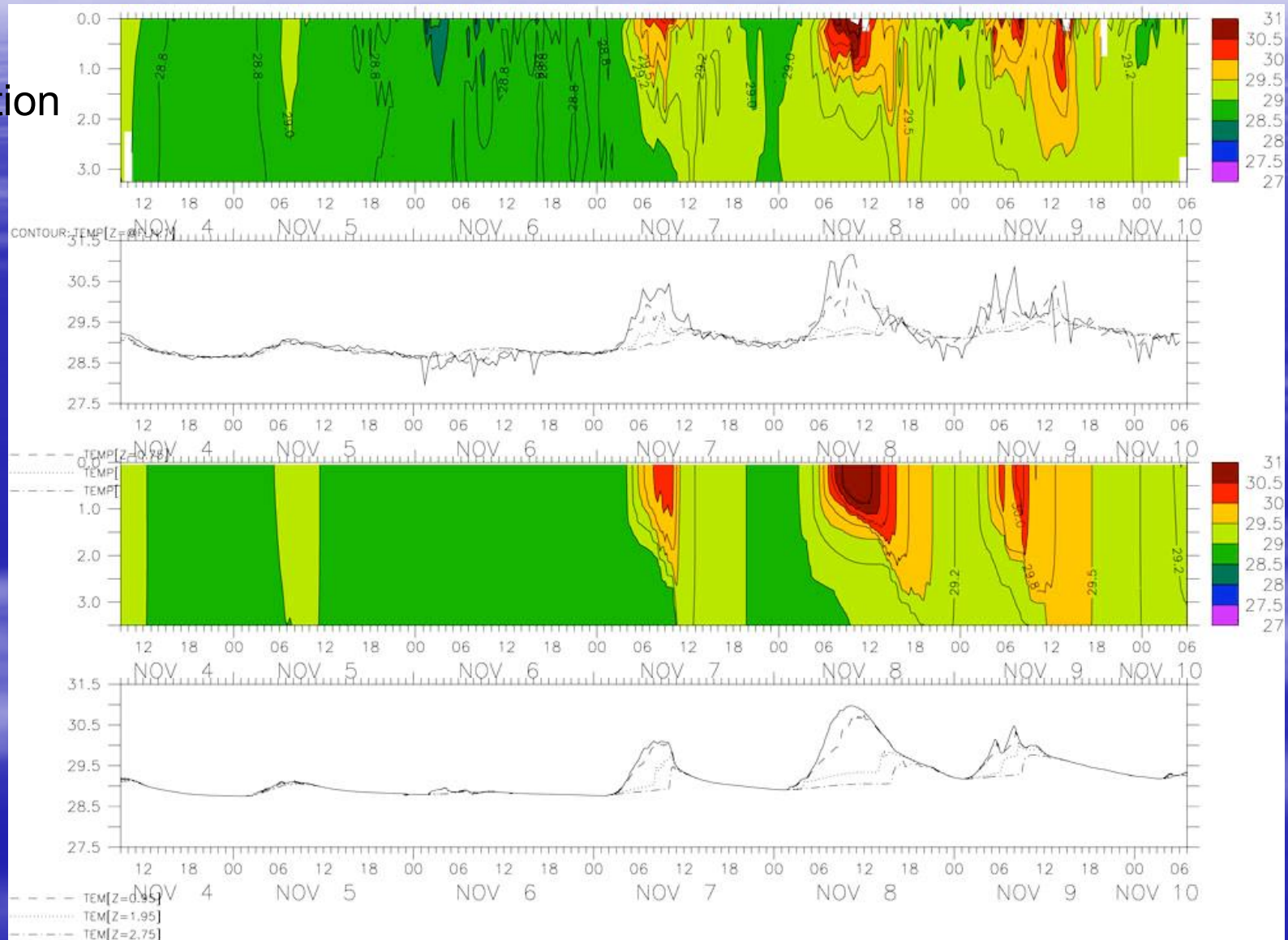
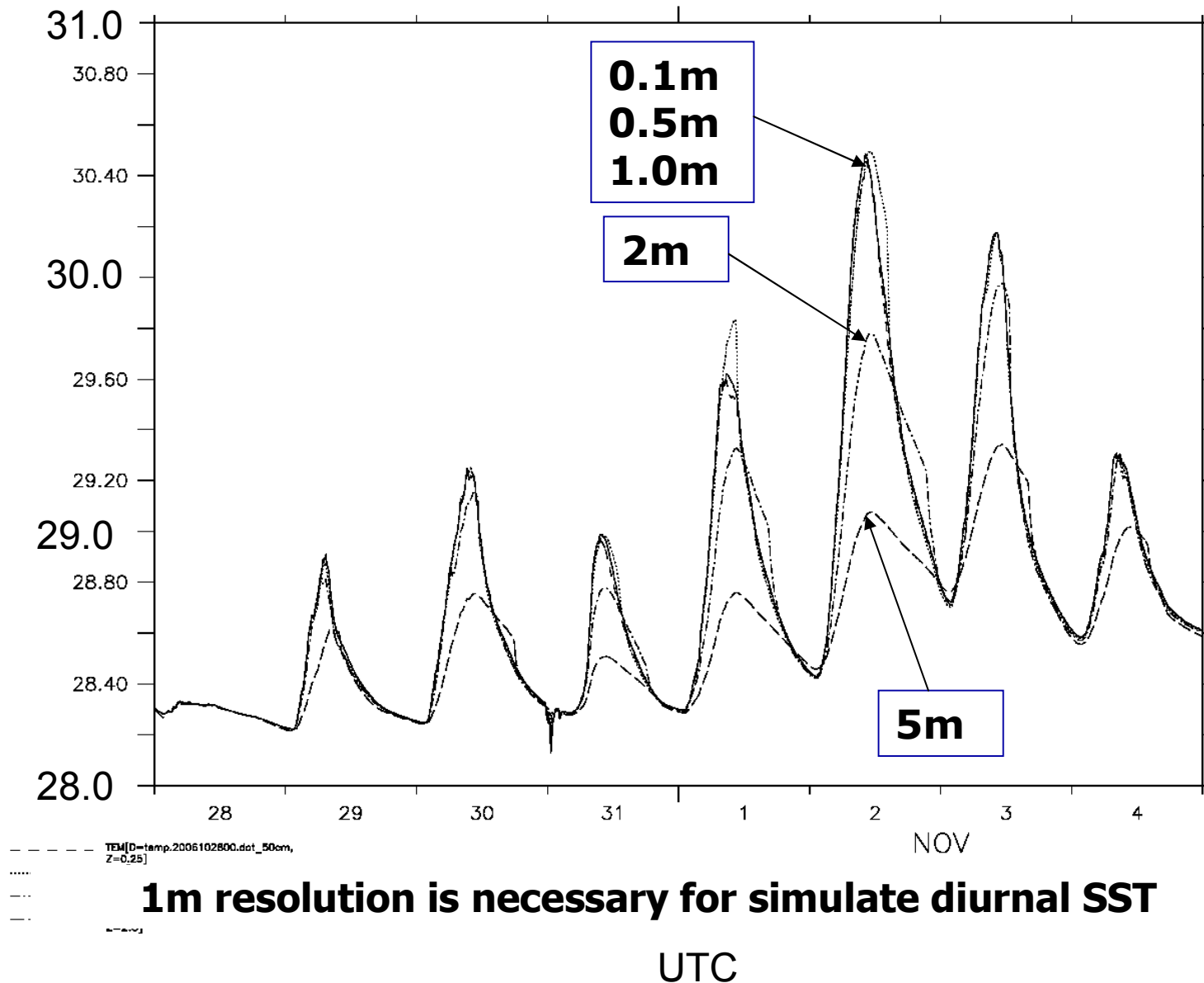※ Seasnake data are used for the top layer.

Observed

Model

SST

Dashed: Observation
Solid: Model

Flux

UTC
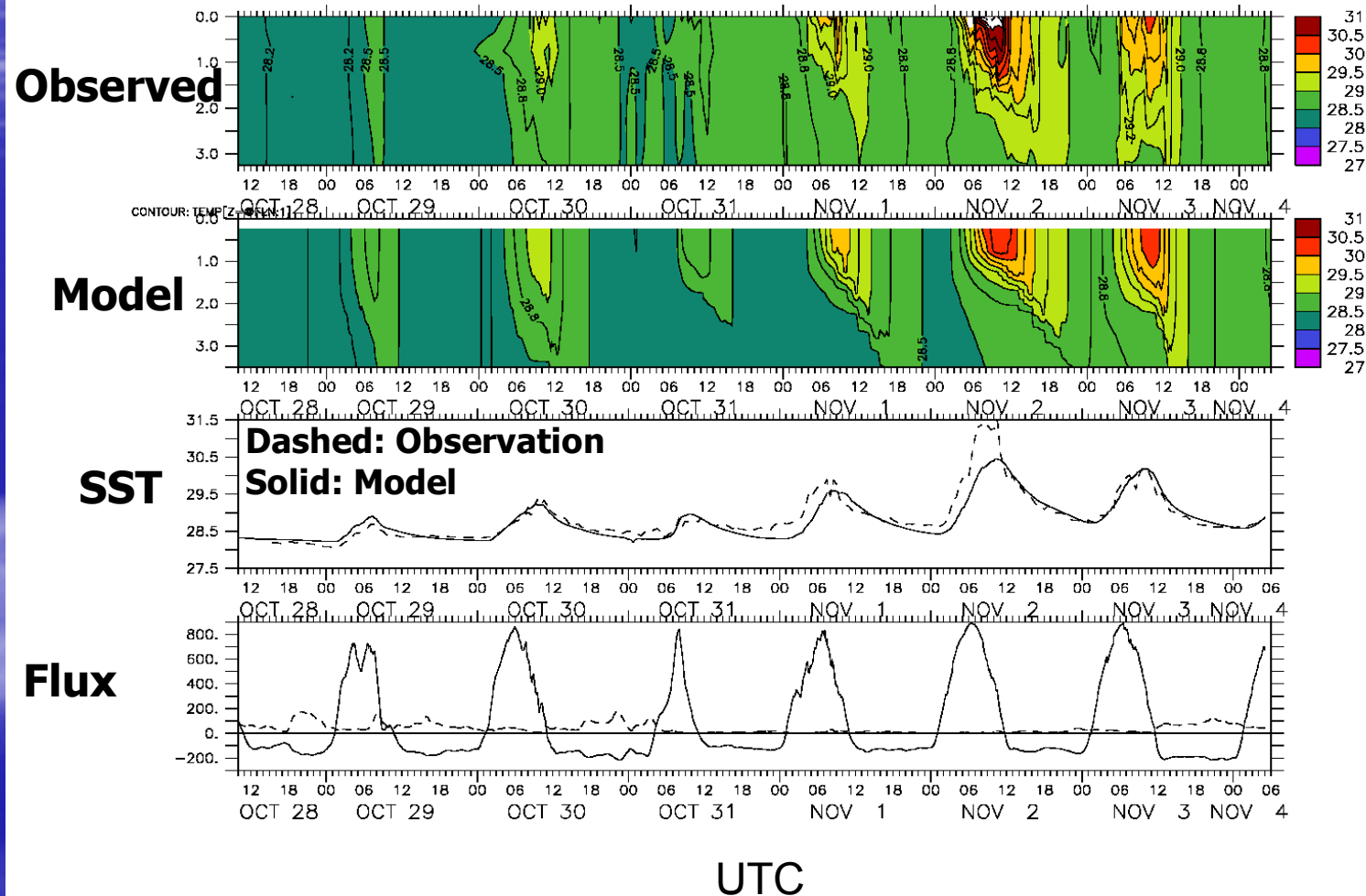
Period 1
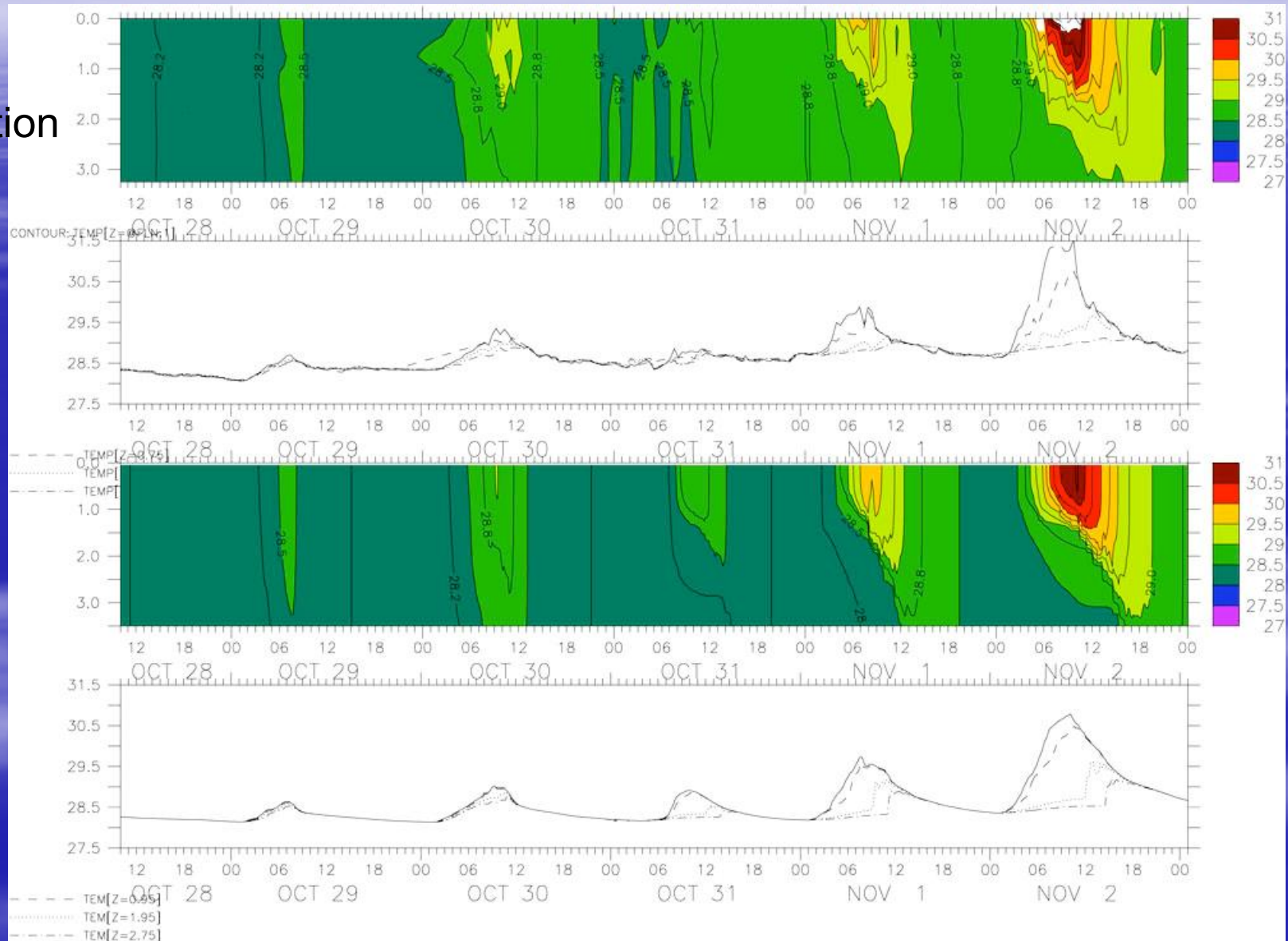
Observation

Model

Period 2

Observation

Model

Vertical resolution to simulate SST

1m resolution is necessary for simulate diurnal SST

UTC

Contact us

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- **Kunio Yoneyama (JAMSTEC)**

- **Yoshimi Kawai (JAMSTEC)**

If you publish your results using our data, please let us know.