CIRCULATION IN AND ALONG SHORE FRONT OF CHILIKA LAGOON

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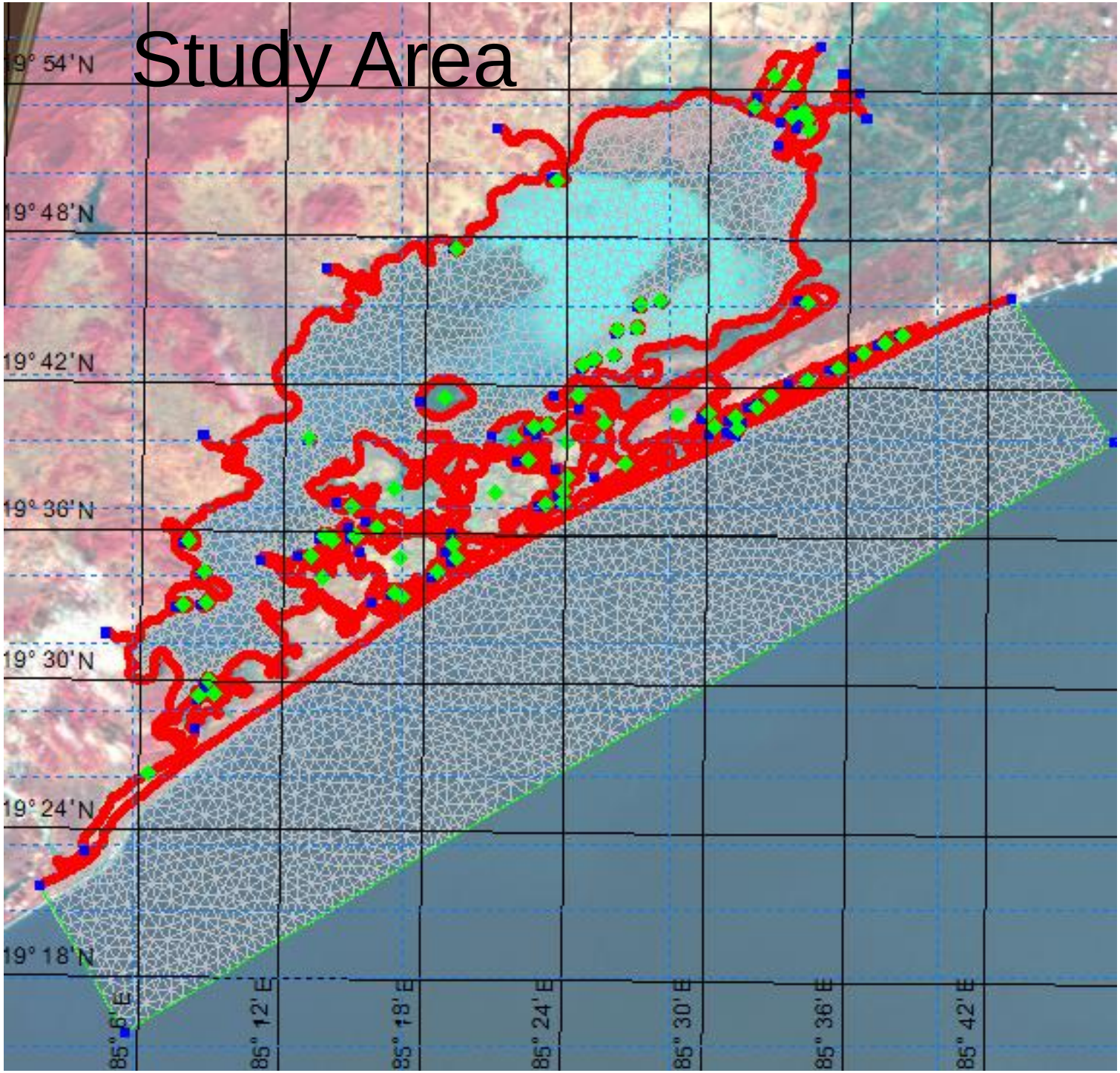
Salient features of Chilika lake

Length	-	64 kms (max)
Breadth	-	20 kms (max)
Avg. water spread area	-	900-1100sq. km
Depth	-	0.38 to 4.2 m
Catchment area	-	4406 sq kms
No. of fishermen villages	-	192
Total fisher folk	-	0.2 million

1st Ramsar site of India designated in 1981


Study Area
19° 54'N
19° 48'N
19° 42'N
19° 36'N
19° 30'N
19° 24'N
19° 18'N
85° 6'E
85° 12'E
85° 18'E
85° 24'E
85° 30'E
85° 36'E
85° 42'E

Objective and scope of study

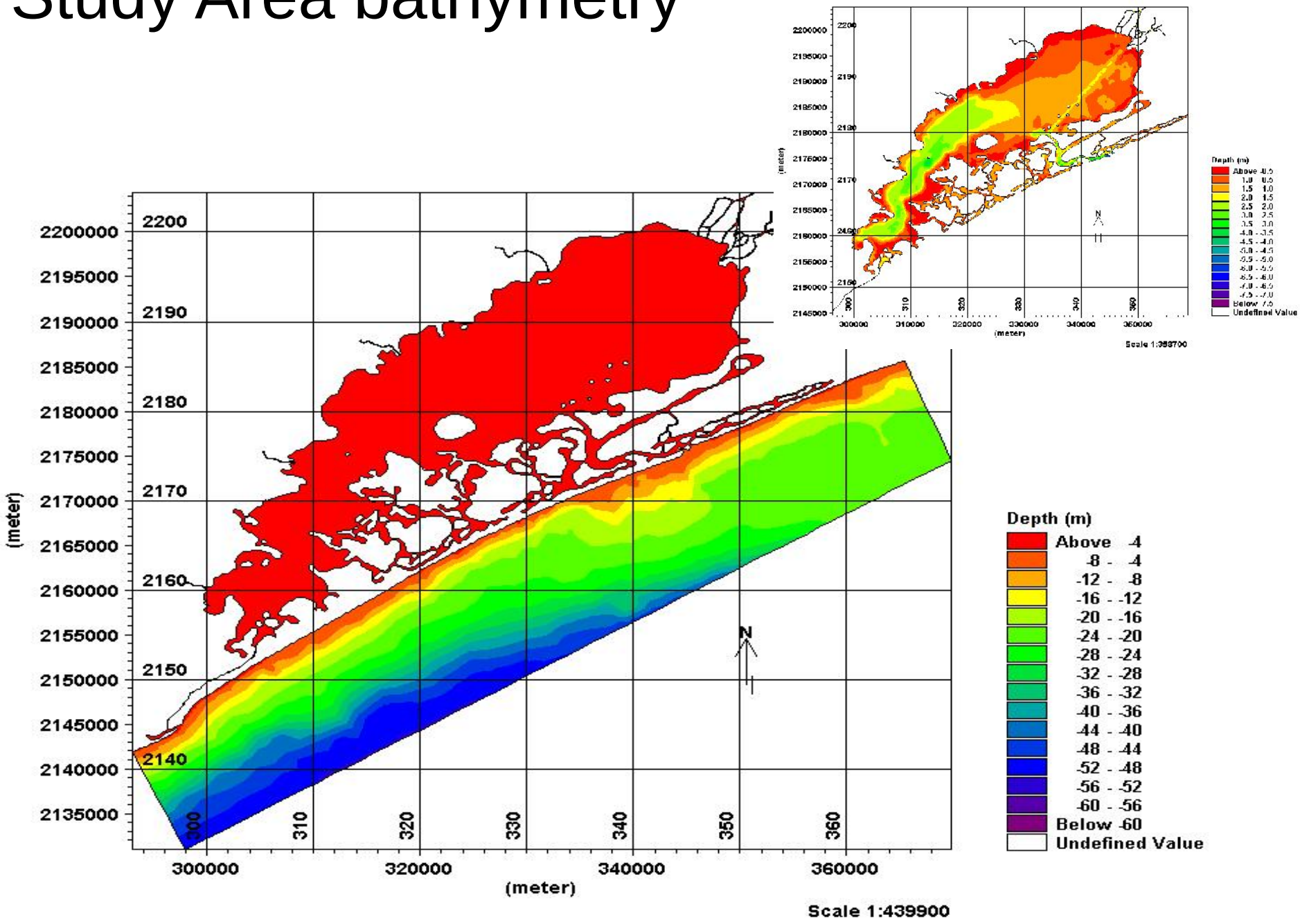
- To understand the seasonal variability in circulation in and along the shore front of Chilika Lagoon and the processes responsible

- To demonstrate the capability of satellite data and remote sensing techniques in improving our understanding of surface circulation and distribution of salinity, temperature, sediment and chlorophyll in and along the shore front of Chilika Lagoon

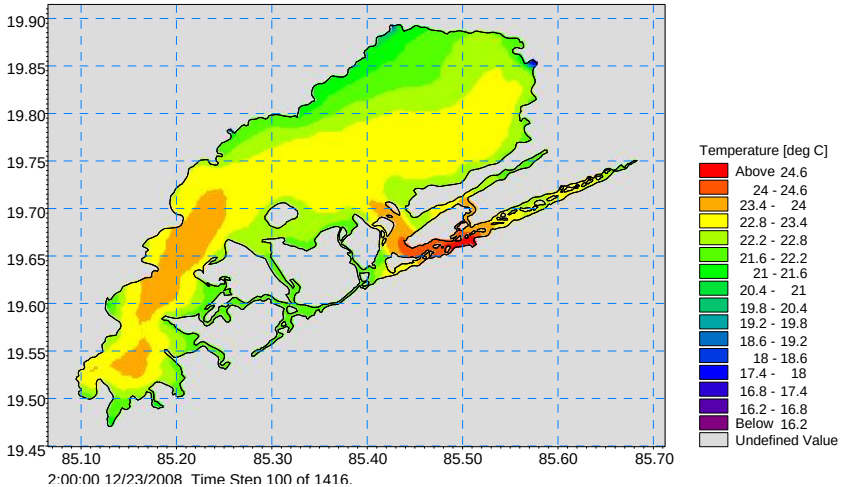
- To examine the role of circulation in the distribution of salinity, temperature, sediment and chlorophyll

- To use numerical modelling techniques for understanding circulation and distribution of salinity, temperature, sediment and chlorophyll and to validate the model simulated features with observations and remotely sensed data.

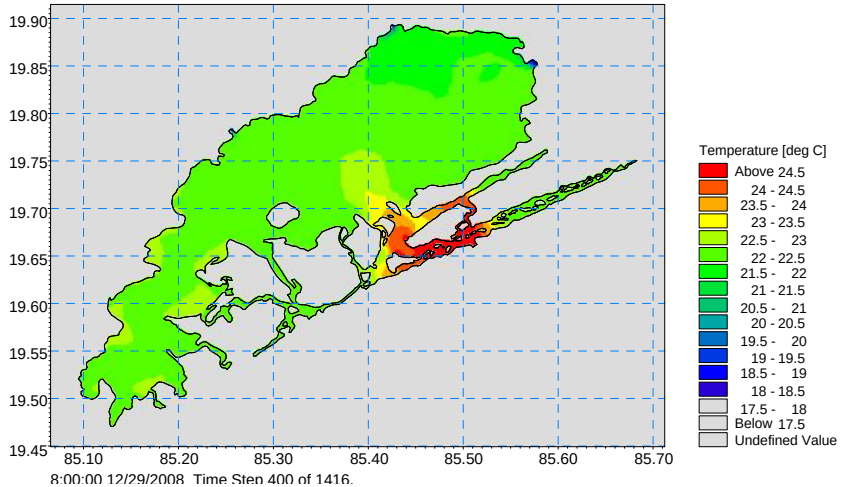
Study Area bathymetry



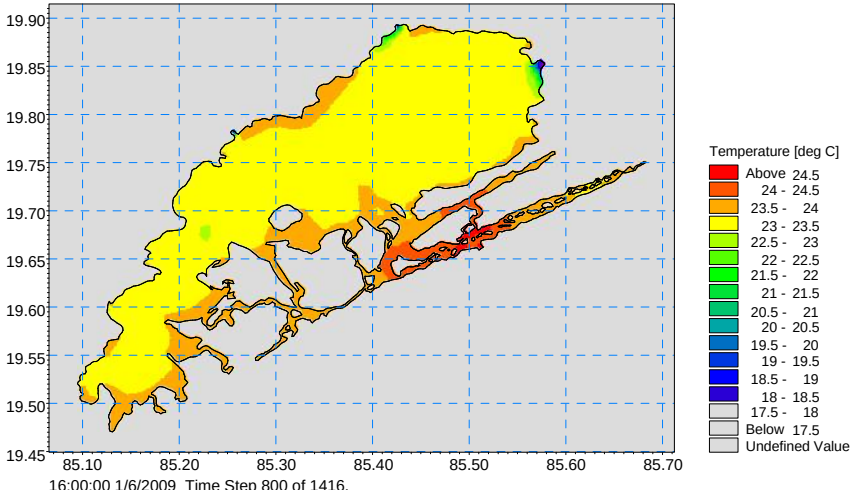
Simulated Temperature in Chilika: accuracy increases with no of time steps and hours of integration



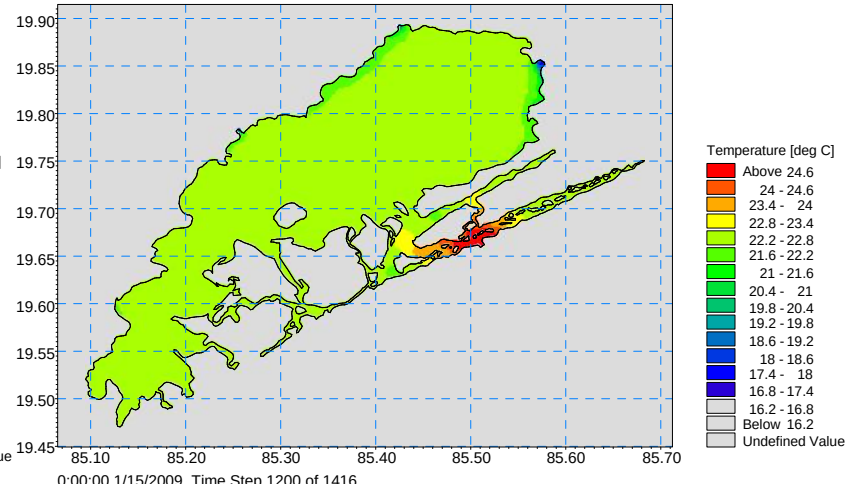
Simulated Temperature (100 time step, 25 hrs)



Simulated Temperature (400 time step, 100 hrs)

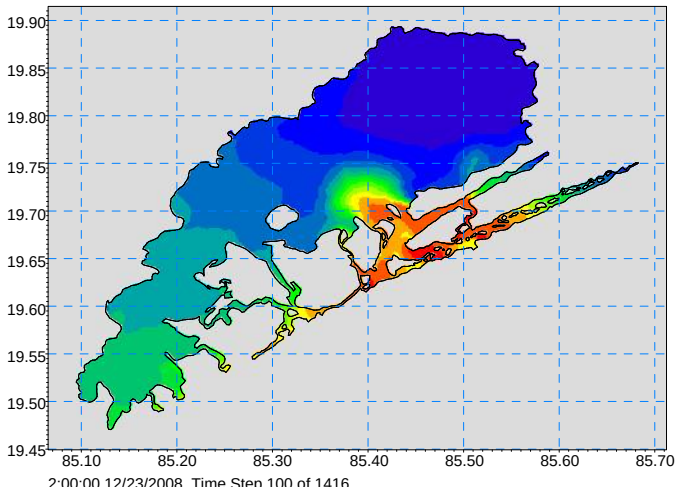


Simulated Temperature (800 time step, 200 hrs)

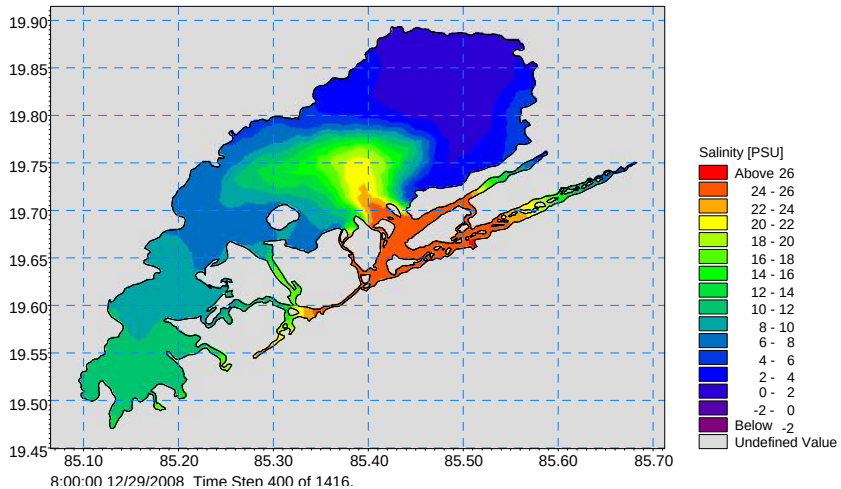


Simulated Temperature (1200 time step, 300 hrs)

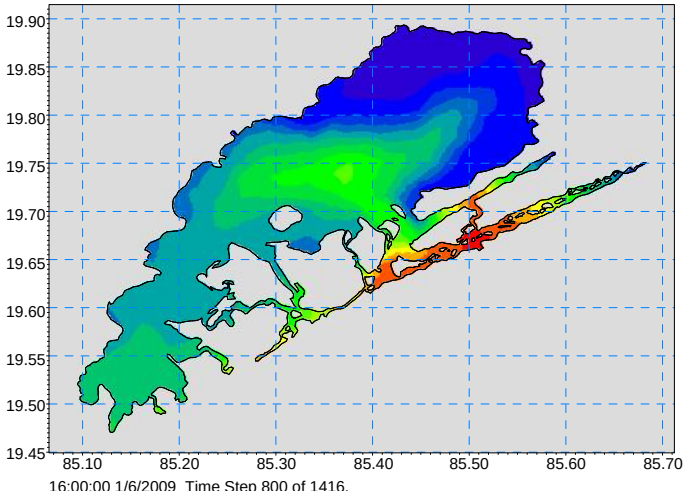
Simulated Salinity in Chilika: accuracy increases with no of time steps and hours of integration



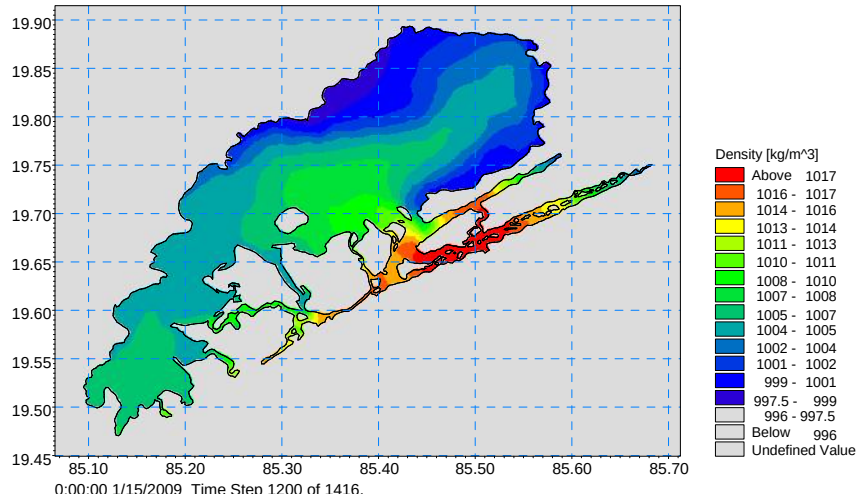
Simulated Salinity (100 time step, 25 hrs)



Simulated Salinity (400 time step, 100 hrs)

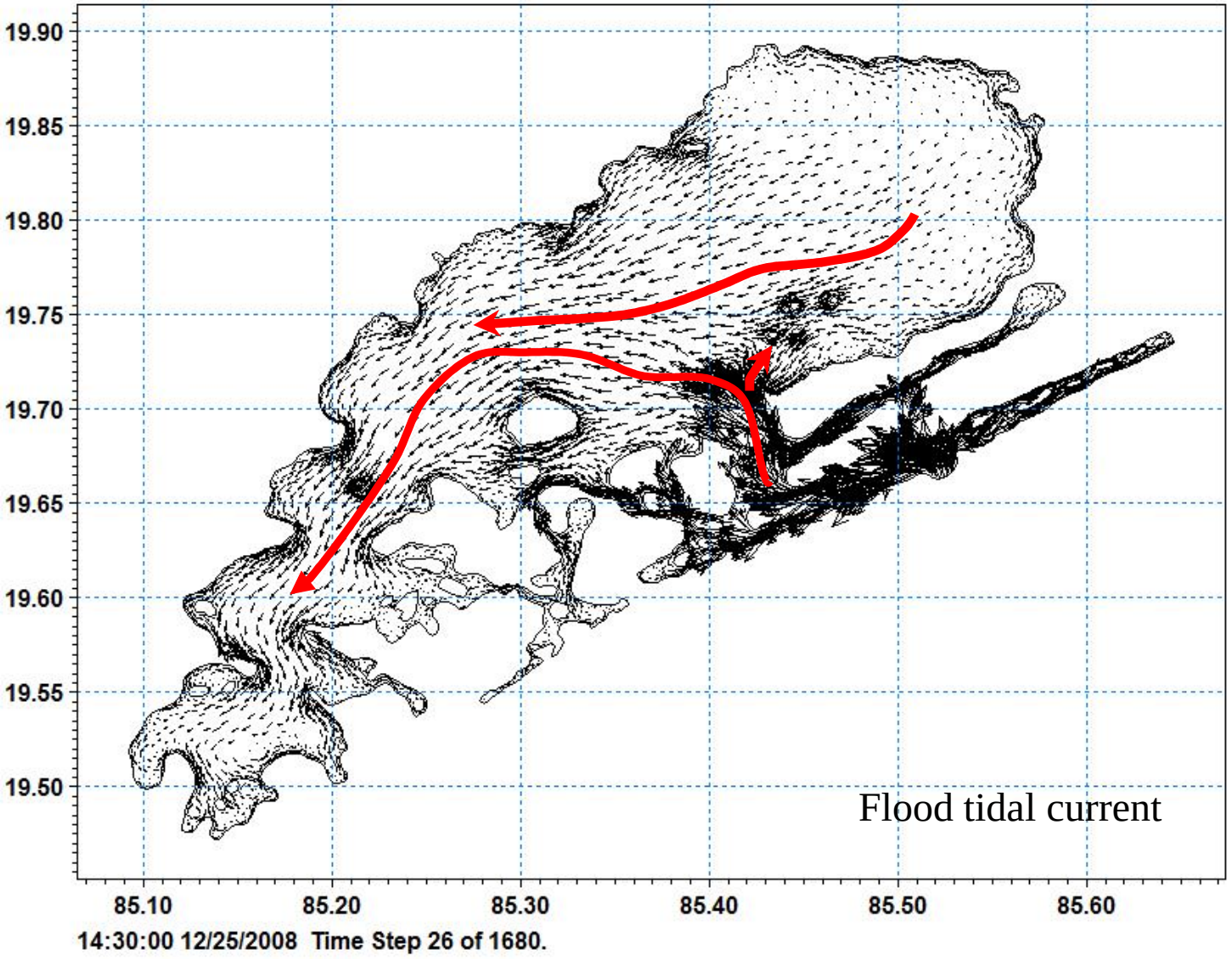


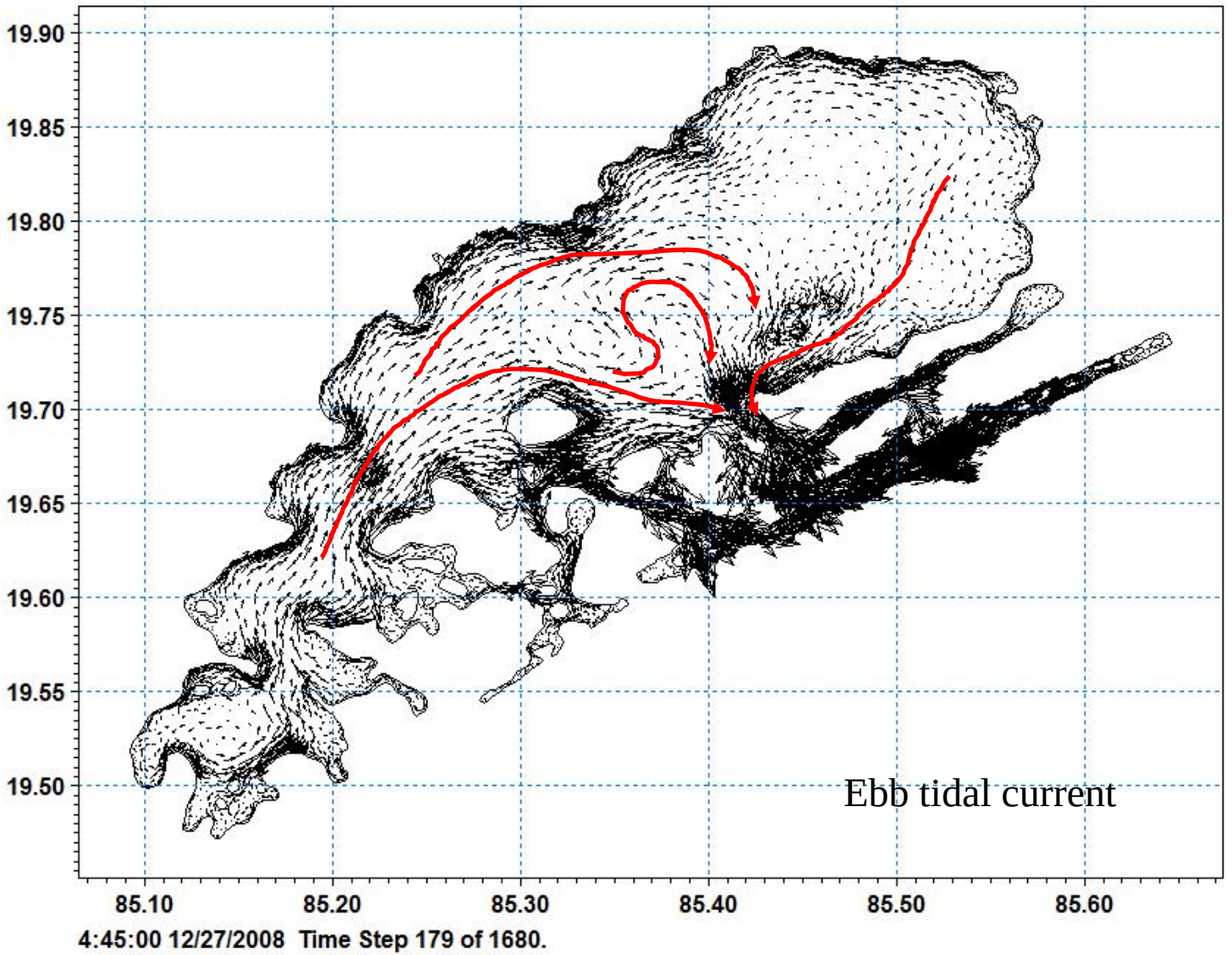
Simulated Salinity (800 time step, 200 hrs)



Simulated Salinity (1200 time step, 300 hrs)

Validation of surface water currents




19.90
19.85
19.80
19.75
19.70
19.65
19.60
19.55
19.50
85.10
85.20
85.30
85.40
85.50
85.60
4:45:00 12/27/2008 Time Step 179 of 1680.
Ebb tidal current

Expected Result/ Deliverables

The study shall enhance our knowledge on the circulation, salinity, temperature, TSM and chlorophyll distribution inside the lagoon. The information shall be immensely helpful to understand the complex interaction between physical and biogeochemical cycles.

- Seasonally varying maps of circulation, salinity, temperature, sediment and Chlorophyll both in and along the shorefront of Chilika lagoon shall be generated.

- The nature of interaction between the lagoon and the adjacent sea shall be revealed.

- Test of potential of numerical models and satellite data in deriving information on complex physical and biogeochemical processes shall pave way for their future use to resolve challenging issues.


Thank You