WENDY WATSON-WRIGHT
UNESCO
Intergovernmental Oceanographic Commission
Sustaining Arctic Ocean Observations for Society

Wendy Watson-Wright and Keith Alverson
Intergovernmental Oceanographic Commission of UNESCO
IOC provides…

• International and intergovernmental coordination of sustained ocean observations, through implementing the Global Ocean Observing System

• GOOS implemented through

• Serve societal needs with partners
Major Accomplishments 2000-2010:

1. **Global Climate Observations:** The ocean observing system for climate is 60% complete. Reporting to the UNFCCC (via GCOS) ensures high visibility. Ocean inputs into the development of a Global Framework for Climate Services is ensured. *Understanding of global climate change has been substantially enhanced.*

2. **Societal Benefits:** Relevant components of the GOOS, particularly coastal, are increasingly available in real time, enabling coastal inundation warnings (storm surges, tsunami). Regional seasonal products derived from ocean observations are also starting to become possible (e.g., ENSO, Monsoon, drought, flooding, and fire regime forecasts).

3. **Standard Setting:** Thermodynamics and Equation of State of Seawater (TEOS-10) adopted.
Total *in situ* networks: 61%

- **Surface measurements** from volunteer ships (VOSclim)
  - 100% participation
  - 200 ships in pilot project
- **Global drifting surface buoy array**
  - 100% coverage
  - 5° resolution array: 1250 floats
- **Tide gauge network** (GCOS subset of GLOSS core network)
  - 59% coverage
  - 170 real-time reporting gauges
- **XBT sub-surface temperature section network**
  - 81% coverage
  - 51 lines occupied
- **Profiling float network** (Argo)
  - 100% coverage
  - 3° resolution array: 3000 floats

**Milestones**
- Drifters 2005
- Argo 2007
- VOSclim 2007

**Reference time series**
- 48% coverage
  - 58 sites

**Global reference mooring network**
- 34% coverage
  - 20 moorings planned

**Global tropical moored buoy network**
- 73% coverage
  - 119 moorings planned
Realtime tidegauge data underpin the climate record and regional coastal services...
Large portions of the Arctic coast are not sampled ...
Polar contributions to GOOS in November 2009

Note: Last locations for platforms. For ships all locations during the month are presented.
Climate change is amplified in the Arctic ...

IPCC AR4, 2007
... Human Impact on Marine Ecosystems is not

The Arctic is changing fast and under-sampled.

Environmental, social and economic Impacts are substantial.

Alverson, EOS, 2008

Report of the SAON-IG, 2009
Implementing Coastal and Regional GOOS

1st GOOS Regional Forum, Athens, Greece, 2002
2nd GOOS Regional Forum, Nadi, Fiji, 2004
3rd GOOS Regional Forum, Cape Town, S. Africa, 2006
4th GOOS Regional Forum, Guayaquil, Ecuador, November, 2008

GOOS Regional Alliances

- ArcticGOOS
- EuroGOOS
- MedGOOS
- Black Sea GOOS
- GOOS-Africa
- IOGOOS
- SEAGOOS
- NEAR-GOOS
- PI-GOOS
- US GOOS
- IOCARIBE-GOOS
- GRASP
- OCEATLAN

SAON
SOOS
Many IPY Arctic cruises occurred in 2007-08 ...
Planned research vessel cruises contained in the POGO database in late September 2008. Of the four cruises indicated four had already been completed and one was underway.

Urban, Improved Tracking of Research Cruises, Urban, EOS, 2009
• Adaptation strategies and Sustainable Development in the Arctic will require interdisciplinary approach

• IOC - UNESCO’s strengths and experience can be helpful
Thank you!