



## OCEANS AND THE LAW OF THE SEA: REPORT OF THE SECRETARY-GENERAL – PART II (2016)

### CONTRIBUTION OF WMO

#### EXECUTIVE SUMMARY

The World Climate Research Programme (WCRP), continues to coordinate the Coupled Model Intercomparison Experiment Project (CMIP), now in its 6<sup>th</sup>

WMO -IMO high level meeting in 2016/2017 to safeguard the buoys at sea, and further urged  
Members to follow recommendations of the Data Buoy Cooperation Panel (DBCP) Technical  
Document No. 41, *Ocean Data Buoy Vandalism Incidence, Impact and Responses.*  
[A/RES/70/235, para 259]

- General to organize a second

the buoys at sea, and further urged



introduction of competency standards into marine forecasting and support the compliance to these standards within their National Meteorological and Hydrological Services and to introduce impact-based services into the marine sector, whilst ensuring that services continue to meet requirements outlined in the International Convention for the Safety of Life at Sea (SOLAS). Met-Ocean Forecasting services are also promoted in alignment with the WMO services delivery strategy and roadmap for marine services, including compliance with the future seamless Global Data-processing and Forecasting Systems (GDPFS), and its updated manual. [A/RES/70/235, para 145]

## **MARINE SCIENCE AND TECHNOLOGY**

### **Marine science, observations and services**

2. WMO is collaborating with partner organizations such as the IOC of UNESCO to further develop, optimize and maintain in complement to satellite observations and remote sensing technology, *in situ* marine meteorological and oceanographic (metocean) observing networks in support of applications such as weather forecasting and operational meteorology, the monitoring, understanding and prediction of climate variability and climate change at various time scales, ocea14( )-2e at va864ing 1the mn) observ14(nactiv )-1abii5(sea,(g 1t35(i)5(nton )-2764i)(an)3(d )- 60c )-8-3(ec



## **SMALL ISLAND DEVELOPING STATES**

12. The 17<sup>th</sup> World Meteorological Congress (Geneva, 25 May – 12 June 2015) approved Resolution 5.3(2)/1 (Cg-17) to create a Programme for WMO Small Island Developing States (SIDS) and Member Island Territories. The new Programme will consolidate existing WMO activities to support improved weather and climate services in SIDS and Member Island Territories, with a view to increase their resilience to extreme weather events and other adverse climate change impacts. Through the Partnership established at the 3<sup>rd</sup> International Conference on Small Island Developing States in Samoa (1–4 September 2014), WMO aims at implementing the “Samoa Pathway” for: (1) improved delivery of weather and climate information services; (2) enhanced human and technical capacities at national and regional climate centres; (3) increased range of products and services delivery to stakeholders; (4) South-South/ North-South Cooperation fostered; and (5) expansion of the infrastructure required for weather and climate research and services.

## **CLIMATE CHANGE AND OCEANS**

### **Mitigating the impacts of climate change**

13. Carbon dioxide is the single most important anthropogenic greenhouse gas in the atmosphere.<sup>7</sup> It contributes ~65% to radiative forcing by long-lived greenhouse gases (LLGHGs) since pre-industrial time (1750). It is responsible for ~83% of the increase in radiative forcing over

the Intergovernmental Oceanographic Commission (IOC) of UNESCO, the Scientific Committee on Oceanic Research, and the Ocean Acidification International Coordination Centre of the International Atomic Energy Agency with support from WMO. According to the Bulletin during the last two decades ocean water acidity expressed as pH decreased by 0.0011–0.0024 units per year, and the amount of CO<sub>2</sub> dissolved in seawater (pCO<sub>2</sub>) increased by 1.2–2.8 µatm per year for time series from several featured ocean stations. [A/RES/70/235, paras 18, 172]

16. WMO/GAW has been a long-time sponsor of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) Working Group on The Atmospheric Input of Chemicals to the Ocean (WG 38). WG 38 has published numerous studies related to the impact of atmospheric deposition of anthropogenic nitrogen to the ocean. Recent work includes a major summary paper on the current understanding of the impact of atmospheric nitrogen deposition on marine biogeochemical cycling and an upcoming article on comparing observation and model-based estimates of atmospheric nitrogen deposition to the ocean. WG 38 is also embarking on two new activities approved by GESAMP at its 42<sup>nd</sup> session (31 August to 3 September 2015, Paris): (1) an investigation of the changing atmospheric acidity and the oceanic solubility of nutrients, and (2) an investigation of the impact of ocean acidification on fluxes of non-CO<sub>2</sub> climate-active species. Workshops to initiate these activities will be held simultaneously in Norwich, UK in February 2017.

17. To ensure better coordination of CO<sub>2</sub>



**ACRONYMS**

CIFDP	Coastal Inundation Forecasting Demonstration Project
CMIP	Coupled Model Intercomparison Experiment Project
GAW	Global Atmospheric Watch
GCOS	Global Climate Observing System
GHG	Greenhouse gas
GMDSS	Global Maritime Distress and Safety System
GOOS	Global Ocean Observing System
IAEA	International Atomic Energy Agency
ICSU	International Council for Science
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IOC/UNESCO	Intergovernmental Oceanographic Commission of UNESCO
IPCC	Intergovernmental Panel on Climate Change
JCOMM	Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology
OOPC	Ocean Observations Panel for Climate
SIDS	Small Island Developing States
UNESCO	