INTERGOVERNMENTAL OCEANOGRAPHI COMMISSION (OF UNESCO)

WORLD METEOROLOGICAL ORGANIZATION

DATA BUOY COOPERATION PANEL

DBCP-29/ INF 6
(20-Sep-13)

TWENTY-NINTH SESSION

PARIS, FRANCE
23-27 SEPTEMBER 2013

ENGLISH ONLY

DBCP-29
SCIENCE & TECHNOLOGY WORKSHOP
TIMETABLE AND ABSTRACTS

Co-chairs: Johan Stander, Jean Rolland

SCIENCE & TECHNOLOGY WORKSHOP
TIMETABLE AND ABSTRACTS

MONDAY 23 SEPTEMBER 2013			
#	*TIME*	*TOPIC*	*PRESENTER /AUTHOR*
	08:45 – 08:50	**Opening of DBCP XXIX**	**Al Wallace, DBCP Chair**
	08:50 – 08:55	Welcome on behalf of the World Meteorological Organization (WMO)	Etienne Charpentier, WMO Secretariat
	08:55 – 09:00	Welcome on behalf of the UNESCO Intergovernmental Oceanographic Commission (IOC)	Mitrasen Bhikajee, Deputy Executive Secretary IOC
	09:00 – 09:05	Welcome on behalf of the IOC-WMO-ICSU-UNEP Global Ocean Observation System	Albert Fischer, GOOS Project Office
	09:05 – 09:10	Local arrangements	Tom Gross, IOC Secretariat
	09:10 – 09:15	**Technical Workshop Programme**	**Johan Stander and Jean Rolland Co-Chairs**
1	09:15 – 09:30	Status And Performance Of Metocean Iridium Drifting Buoys	B Petolas
2	09:35 – 09:50	Optimizing Argos Pmt Settings For Drifting Buoys	M Guigue
3	09:55 – 10:10	Investigation of Recent Reduced Life Spans of GDP Drifters	A Sybrandy
4	10:15 – 10:30	Evaluating Drifter And Drogue Lifetimes For Various Manufacturers	E Valdes
	10:30 – 11:00	**Body Break**	
5	11:00 – 11:15	Partnerships And Capacity Building	S Thurston
6	11:20 – 11:35	The Ekman Current Observed From Drifters In The Northeast Pacific	D Lee
7	11:40 – 11:55	A Wind Profiling Platform For Offshore Wind Measurements And Assessment	M Blaseckie
8	12:00 – 12:15	2013 SVP Drifter Developments At SIO	L Braasch
9	12:20 – 12:35	The Response Of The Surface Circulation Of The Arabian Sea To Monsoonal Forcing	V Hormann1
10	12:40 – 12:55	A New Global Surface Current Climatology, With Application To The Hawaiian Island Region Lead	R Lumpkin
	12:55 – 13:45	**Lunch**	

11	13:45 – 14:00	Development And Mooring Of A Brazilian Prototype Of The TAO/PIRATA Atlas Buoy	E Campos
12	14:00 – 14:15	Capacity Of HRSST-2 Buoys To Measure SST With A High Degree Of Accuracy	P Blouch
13	14:20 – 14:35	Identifying Drifter Deployment Values Based On Key Factors That Affect Drifter Lifetimes	S Dolk
14	14:40 – 14:55	Wave Measurement Comparisons From Moored Buoys And Light Vessels	J Turton
15	15:00 – 15:15	Drifting Characteristics Of SVP Drifters In The North Atlantic Subtropical Gyre	G Reverdin
16	15:20 – 15:35	*Establishing The Canadian Arctic Buoy Array (CABA) - Early Assessment Of Impact On Numerical Weather Prediction MSLP And Ice Forecasts*	C Marshall
	15:35 – 16:05	**Body Break**	
17	16:10 – 16:25	New Observations Of Subsurface Thermal Saline And Current Structure For The Arabian Sea From Omni Buoys	R Venkatesan
18	16:30 – 16:45	Tracking Of Mesoscale Eddies Across The Southern Mozambique Channel Using Argo Float Technology	T Morris
19	16:50 – 17:05	CTD Profiling On A Surface Mooring In The Upper 500m For ENSO Observations	C Meinig
20	17:10 – 17:25	Features of GPS use on Argos-2 and Iridium telemetry equipped drifters	S Motyzhev
21	17:30 – 17:40	Challenges with Iridium 9602 Modems	Andy Sybrandy
	17:40	**Wrap Up**	**Johan and Jean**
	17:45	**Closing**	**Al Wallace**

STATUS AND PERFORMANCE OF METOCEAN IRIDIUM DRIFTING BUOYS.

Emily MacPherson

This paper offers a synopsis of the evolution of the use of the Iridium satellite system in drifting buoys over the last 10 years. Early drifters use the Iridium Doppler effect for positioning. When this method proved to be insufficiently accurate, GPS was added. This caused a number of issues for the drifters in particular rapid power supply depletion. Advances in GPS technology as well as power supply technology are discussed. Finally, sensor accuracy including adding HRSST sensors to buoys is discussed.

OPTIMIZING ARGOS PMT SETTINGS FOR DRIFTING BUOYS

Michel Guigue, Yann Bernard and Bill Woodward

from CLS America

Using an Argos PMT (Platform Messaging Transceiver) rather than a traditional PTT in a drifting buoy will improve the efficiency of your data transmissions thus enabling the buoy to consume significantly less power and thereby dramatically extend its lifetime. Optimizing the functional settings of the PMT is essential to maximizing the buoy performance. This presentation outlines the features of the PMT, identifies the PMT variables that can be adjusted and shares recommendations for how to set and properly apply these variables in order to maximize the technical performance and, hence, the lifetime of the drifter. Also included in the presentation will be an update of the ongoing CLS Argos 3/4 chipset development project (called SHARC) and the positive impact it can have on buoy performance and lifetime.

INVESTIGATION OF RECENT REDUCED LIFE SPANS OF GDP DRIFTERS

A. Sybrandy

Pacific Gyre Inc.

Since 2007, the median life spans of drifters deployed as part of the Global Drifter Program have decreased significantly. As a result, the GDP array size has fallen from a peak of over 1250 to, at times, under 1000. Much work has taken place over the past 12 months to identify the causes of

these reduced life spans. The focus of this work is now on electronics power consumption and the installation and composition of the installed battery packs. Investigations include an analysis of the effects of various changes to sensors, transceivers, satellite systems, and even battery cell chemistry and construction. Here we present our investigative findings, the present state of our on-going analysis, and what has already been done to possibly begin to rectify these issues.

EVALUATING DRIFTER AND DROGUE LIFETIMES FOR VARIOUS MANUFACTURERS

Erik Valdes, CIMAS

Drifter and drogue lifetimes are evaluated for each major manufacturer as a function of year. First results of lifetime calculations for salinity drifters deployed in the Tropical Atlantic are also presented.

Death rates are evaluated for all drifters, and separately for those that did not run aground or were picked up. Progress in increasing the drifter lifetimes made since last year's DBCP meeting is assessed based on these results.

PARTNERSHIPS AND CAPACITY BUILDING

Sidney Thurston

Partnerships for New GEOSS Applications (PANGEA) in the Indian Ocean Region are underway to help build sustainable capacity for ocean observations and their societal applications. PANGEA Partnerships have been successful towards implementing the IOGOOS/CLIVAR Indian Ocean Observing System (IndOOS) *Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction* (RAMA) and other in-situ ocean-climate observations. For the past six years PANGEA Partners have been convening in-country, practical, socio-economic applications training for Regional decision-makers, policy and budget administrators, scientists, end-users and other stakeholders, so that RAMA is now over two-thirds completed. By building on and complementing existing capacity building programs, a sustainable capacity for the region is being achieved through the increases in both near real-time in-situ ocean observational data and information as well as demonstrating the more effective applications of, and access to, these existing and new data. This presentation will provide an updated brief on NOAA’s ongoing PANGEA collaboration with India, Indonesia, Japan, the Agulhas-Somali Current Large Marine Ecosystem (nine East African Nations) Program and now with Australia and emerging Partnerships with China, Korea and Chile; highlights of the DBCP's PANGEA Fourth In-Region Capacity Building Workshop for the Western Indian Ocean in Zanzibar Tanzania, Typhoon Workshop for the North Pacific Ocean and Marginal Seas (NPOMS-2) and 2014 Workshop for the South Pacific Region; and near-term opportunities for the DBCP, NOAA and other ocean Institutes to expand the PANGEA concept globally for Data Buoy & potentially future Glider implementation and training.

THE EKMAN CURRENT OBSERVED FROM DRIFTERS IN THE NORTHEAST PACIFIC

Dongkyu Lee and Luca Centurioni
Scripps Institution of Oceanography

The analysis of Ekman current in the Northeast Pacific from drifter data reveals that the linear Ekman solution is not applicable. The data showed that the Ekman current speed at 15 m depth, $U_E \cong A u_* e^{i\theta}/\sqrt{f}$ and the angle between Ekman current and wind is about 60°. The angle is nearly independent of magnitude of u_*. The linear Ekman solution gives the current angle, $\theta = (\frac{z}{H} + \frac{\pi}{4})$, where *H* is Ekman layer depth. Since the Ekman layer depth is dependent upon friction velocity, the angle between wind and current at 15m should decrease with increasing wind speed.
When annual variations of coefficient *A* and angle θ are calculated, sudden increase of A and smaller θ in 1996 are noted. Winter averages are also larger (A) and smaller (θ) than summer averages. The possible explanation of these changes is the existence of subsurface buoy at 3m from the surface. Without subsurface buoy, frequent collapsing of upper part of holysock type drogue is possible when the sea surface is rough and the average depth of drifter becomes shallow when collapsing happens. The pressure gauge installed drifter is planned to deploy for testing this drifter behavior.

A WIND PROFILING PLATFORM FOR OFFSHORE WIND MEASUREMENTS AND ASSESSMENT

Mark Blaseckie

The Wind Sentinel™ buoy is an innovative solution developed to monitor wind profiles from near sea surface levels to upwards of 300 meters above sea level. The system was designed to meet the monitoring requirements expected of an offshore wind resource assessment platform. The Wind Sentinel™ uses a laser wind sensor mounted on a buoy pointing vertically upwards and is thus capable of measuring wind data at the install heights of conventional offshore wind turbines. The Wind Sentinel™ was developed to provide a mobile platform to reduce the complexity, logistics and cost of performing offshore wind assessments and operational monitoring.

This presentation will review the system design and discuss the results both prototype testing and commercial deployments undertaken to date.

AXYS Technologies Inc. (ATI) is a Canadian company specializing in the design and manufacture of environmental data acquisition, processing and telemetry systems. Since 1986 we have been responsible for supplying systems for the entire Canadian network of Met/Oceanographic buoys. We apply our extensive knowledge and experience to marine and freshwater buoy platforms that measure aquatic, oceanic and atmospheric parameters. Our systems utilize proven cost-effective technology applicable to a wide range of applications. With more than 500 systems successfully deployed and in use around the world, ATI is considered a world leader in buoy based systems for environmental monitoring and data acquisition.

2013 SVP DRIFTER DEVELOPMENTS AT SIO

Lance Braasch, Luca Centurioni

In 2012, SIO developed and begun manufacturing SVP platform drifters. Using the in-house developed SVP platform, Argos 2, Argos 3 and Iridium drifters were deployed. Since initial development, a second generation hardware configuration has been finalized, and deployed. Here, we report the progress of development, status of deployed units, and impact on the scientific community. Particular emphasis will be placed on the implementation of Argos 3 technology and investigation of battery pack failures.

THE RESPONSE OF THE SURFACE CIRCULATION OF THE ARABIAN SEA TO MONSOONAL FORCING

Verena Hormann1, Lisa M. Beal2, Rick Lumpkin3, Gregory R. Foltz3, and Luca Centurioni1

1Scripps Institution of Oceanography, University of California - San Diego, La Jolla, CA, USA

2Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL, USA

3NOAA/Atlantic Oceanographic and Meteorological Laboratory, Miami, FL, USA

Two decades of drifter and satellite data allow describing the monthly evolution of the surface circulation of the Arabian Sea, which reverses annually with the Indian monsoon winds. Several features are found that advance current understanding: Northward flow appears along the length of the western boundary, together with a weak anticyclone at 6°N as early as March or April. This circulation is driven by planetary waves, which are initiated by wind curl forcing during the previous southwest monsoon. The eastward South Equatorial Counter Current (SECC) is found to be present year-round, fed by the northward East African Coastal Current (EACC). During the southwest monsoon the EACC overshoots the equator and splits, feeding both northward into the Somali Current and eastward into the SECC by looping back across the equator. At the surface, this circulation is obscured by strong, locally wind-driven, cross-equatorial transport. There is broad, strong eastward flow at the mouth of the Gulf of Aden throughout the southwest monsoon, coincident with alongshore winds and a switch in sign of the wind curl along the axis of the atmospheric monsoon jet. New observations will provide further insights into the physics of the Arabian Sea and particularly the Somali Current.

A NEW GLOBAL SURFACE CURRENT CLIMATOLOGY, WITH APPLICATION TO THE HAWAIIAN ISLAND REGION LEAD

Author: Rick Lumpkin (NOAA/AOML)

Coauthors: Gregory Johnson (NOAA/PMEL) and Pierre Flament (Univ. Hawaii)

A global climatology of near-surface currents and SST is derived from drifter observations, at monthly and one-half degree resolution.

Animations of the seasonal currents reveals monsoon-driven fluctuations in the tropical basins. The coefficient regressed onto the Southern Oscillation Index reveals ENSO-driven currents in the tropical Pacific and Indian basins. In the Hawaiian Island region, the climatology reveals seasonal variations in the strength and location of the Hawaiian Lee Countercurrent (HLCC); velocity residuals

with respect to the climatological currents indicate that an eddy-to-mean flux of energy helps maintain this current.

DEVELOPMENT AND MOORING OF A BRAZILIAN PROTOTYPE OF THE TAO/PIRATA ATLAS BUOY

Edmo J. D. Campos[1], Carlos A. S. França[1], Leonardo Barreira[2], Luiz V. Nonnato[1], Francisco Vicentini Netto[1] and Rick Cole[3]

[1]Oceanographic Institute of the University of São Paulo, Brazil

[2]Instituição do Barreira

The South Atlantic Convergence Zone (SACZ) is an important component of the ocean-atmosphere interactions over a large portion of South America. For properly monitoring the SACZ, the preliminary ideas for a southwest extension of the *Prediction and Research Moored Array in the Tropical Atlantic* (PIRATA) considered a set of four Atlas buoys; the last one intended to be moored near 28^{o}S and 44^{o}W. In its final configuration, however, the *PIRATA Southwest Extension* (PIRATA-SWE) deployed only three buoys in the tropical region, to the north of the SACZ. In March 2004, the occurrence of an unusually strong extra-tropical cyclone over the subtropical South Atlantic, which acquired characteristics of a Saffir-Simpson class-1 hurricane (the "*Catarina*"), near 28^{o}S, reinforced the necessity of having a monitoring platform anchored in that region. In 2009, efforts were started to assemble and deploy a Brazilian prototype of the TAO/PIRATA Atlas buoy – the Atlas-B. Finally, in April 2013 the first Atlas-B, dubbed the "*Guariroba*", was successfully moored at 28.5^{c}S, 44^{o}W. This work is being conducted as an activity of the Brazilian National Institute of Science and Technology (INCT) for Climate Change funded by CNPq (Grant Number 573797/2008-0) and FAPESP (Grant Number 2008/57719-9). Similarly to the PIRATA program, this mooring site will be maintained initially as a pilot experiment, and eventually included in the long-term Brazilian monitoring programs.

CAPACITY OF HRSST-2 BUOYS TO MEASURE SST WITH A HIGH DEGREE OF ACCURACY

Pierre Blouch, Jean Rolland

Meteo-France, Centre de Météoroologie Marine, Brest

Since its creation, Meteo-France is actively participating in the DBCP Pilot Project for High Resolution SST (PP-HRSST), either in the frame of E-SURFMAR or in collaboration with LOCEAN (for salinity drifters). Since 2012, several buoys, called HRSST-2, were deployed in various areas. These buoys are fitted with a digital SST probe which is calibrated before integration. In addition to SVP-B drifters of that kind funded by E-SURFMAR, a few SVP-BS [salinity] drifters were deployed. These latter are fittted with a SeaBird CT sensor. Comparisons between temperatures reported by the two independent probes shows that HRSST-2 buoys are able to measure SST with an accuracy of 0.02 K.

IDENTIFYING DRIFTER DEPLOYMENT VALUES BASED ON KEY FACTORS THAT AFFECT DRIFTER LIFETIMES

Shaun Dolk

In an effort to maximize drifter data coverage and extend drifter lifetimes, the Global Drifter Program has developed a method to assess the value of each drifter within the global array and project drifter locations using monthly mean current data. By anticipating the configuration of the array and determining the observations collected from each drifter, we can identify the highest value deployment locations and eliminate areas of high risk.

WAVE MEASUREMENT COMPARISONS FROM MOORED BUOYS AND LIGHT VESSELS

Jon Turton & Fiona Carse. Met Office, Exeter.

Wave measurements from the Met Office moored buoys and light vessels have been compared against wave model outputs to identify systematic differences. The impact of these on the long-term time-series from the light vessels, which were previously equipped with a ship-borne wave recorder, and extend back for over 30 years will be discussed. Comparisons of wave measurements from moored buoys equipped with both a Datawell heave sensor and Triaxys directional spectral wave sensor will also be presented.

DRIFTING CHARACTERISTICS OF SVP DRIFTERS IN THE NORTH ATLANTIC SUBTROPICAL GYRE

Gilles Reverdin[1], Simon Morisset[1], Louis Marie[2]

1 LOCEAN, CNRS/UPMC/IRD/MNHN, UPMC, 4 pl. Jussieu, 75252 Paris Cedex 05

2 LPO, IFREMER/UBO/CNRS, BP 70, 29280 Plouzané Cedex

The Strasse cruise took place on the French R.V. Thalassas in late August-early September in the North Atlantic subtropical gyre with moderate wind/swell conditions associated with the trade winds. Late night mixed layer depths reached between 15 and 30 m. Three 3-day-long stations were done, during which an array of up to 6 SVP drifters, and different autonomous instruments were deployed in a patch of 1 to 3-km size. Most drifters were drogued at 15 m, but one was drogued at 50m depth and towed a platform with a downward looking 300 kHz ADCP providing 1-minute current profiles with 1-m resolution. The velocity data of the drifting ADCP and of the ship ADCP are compared with the drifter velocities. Differences are interpreted in term of current shear and wind/swell conditions, as well as internal waves.

ESTABLISHING THE CANADIAN ARCTIC BUOY ARRAY (CABA) - EARLY ASSESSMENT OF IMPACT ON NUMERICAL WEATHER PREDICTION MSLP AND ICE FORECASTS

Chris Marshall

Environment Canada is making investments in in-situ monitoring in the Arctic Ocean through the METAREA project. The 5-year project has enabled the establishment of the Canadian Arctic Buoy Array (CABA), which will include a sustained network of surface drifting buoys equipped with barometers and other sensors deployed on the ice and seasonally open waters of the Arctic Ocean. Over the past two years, nearly 30 drifters have been deployed through collaborations with a range of different organizations, including the Canadian Coast Guard and Royal Canadian Air Force. Air deployments have allowed for installation of buoys onto the multi-year ice in the Beaufort Sea, and also ensured good spatial distribution of the barometer buoys. Initial assessment of impact of the buoy array are promising, as numerical weather prediction models show a decreased bias in MSLP forecast and improvements in ice drift predictions. Additional work is required to further validate *these early findings, which will help to inform the design and configuration of the Canadian Arctic Buoy Array, as well as other contributors to the International Arctic Buoy Panel (IABP).*

NEW OBSERVATIONS OF SUBSURFACE THERMAL SALINE AND CURRENT STRUCTURE FOR THE ARABIAN SEA FROM OMNI BUOYS

R. VENKATESAN, SIMI MATHEW, VIMALA. J

Ocean Observation Systems, National Institute of Ocean Technology

Ministry of Earth Sciences, Chennai 600100 India

The Ocean Moored Network for Northern Indian Ocean (OMNI) buoys have extended its operation into the Arabian Sea at specified five locations since October, 2012 completing a total network of 12 buoy systems in the northern Indian Ocean. The OMNI buoy data with additional feature of subsurface temperature, salinity and current is first of its kind observation from the Arabian Sea from a moored buoy system. The interesting features with big contrast with the Bay of Bengal are the high surface saline waters compared to the subsurface levels. The Arabian Sea is fed constantly by the high saline waters from Red Sea and Persian Gulf which even reach the Bay of Bengal during the summer monsoon. The variations in the surface salinity values with season at specific buoy location along with current information can be used to study the role of advection. Strong episode of mixing upto 100m depth is observed during February at the northern most buoy located at 19N/67E. The surface layers remained cool till mid of March. Certain episodes of freshening which lowered the surface salinity to even values less than the 500m depth was recorded at 15N/69E during April-May, which is quiet contrary to the assumption that the Arabian Sea surface waters are high saline compared to subsurface levels. Summer transition period seems to be associated with strong barrier layer formation at 12N/68E location. These new findings of the Arabian Sea have to be supported with proper salt budget studies. The seasonal variation of heat flux terms can be obtained from the observed shortwave and longwave radiation along with high accurate precipitation data at each buoy locations. The subsurface response to storm forcing and cyclone is another area of interest. The response of the ocean varies with the presence of barrier layer and temperature inversions which can only be explained with the help of buoy data wherein most of the time satellite data will be obscured with cloud coverage. The entire buoy data with a data return once in every hour is a good source for internal wave studies. The data has been used for validation with satellite derived SST and wind. There are certain periods during which satellite data show higher bias than the buoy

data especially during the transition period. The validation of model currents, temperature and salinity with in situ buoy data is also very essential for measuring the accuracy of the model prediction. The process of assimilation of buoy SST data into models has been implemented by Indian Meteorological Department (IMD) for the better prediction. The prediction of cyclone track and intensity has improved very much by the assimilation of these buoy data. This paper describes significant observations from the Arabian Sea OMNI buoy network

---

TRACKING OF MESOSCALE EDDIES ACROSS THE SOUTHERN MOZAMBIQUE CHANNEL USING ARGO FLOAT TECHNOLOGY

Morris, T.1*, Roberts, M.J.2, Ansorge, I.3, Owens, B.4 and Robbins, P.E.4
1Bayworld Centre for Research and Education, Cape Town, South Africa
2Oceans and Coast, Department of Environmental Affairs, Cape Town, South Africa
3Department of Oceanography, University of Cape Town, South Africa
4Woods Hole Oceanographic Institute, Woods Hole, Massachusetts, United States of America
*Author for correspondence: tammy@oceanafrica.com

Five SOLO II Argo floats with iridium transmitters, donated by Woods Hole Oceanographic Institute (WHOI), were deployed within a cyclonic eddy during the Western Indian Ocean Sustainable Ecosystems Alliance (WIOSEA) Cruise in April 2013. The objective of the experiment was to understand the dynamics of mesoscale eddies and their potential capability to transport biological material between Madagascar and South Africa. The cyclonic eddy investigated first occurred off SE Madagascar around the 1st of March 2013, initially interacting with the Madagascan shelf and then moving westwards from the 15th of March, before coming into contact with the South African coast around the 16th of May – a very rapid two month journey! The floats were initially set up to do daily profiles from 1000 db to the surface, with a subsurface park depth of 300 db in order to keep them within the cyclonic eddy. This configuration was modified over time to accommodate the cyclonic eddy moving westwards towards the South African coast and to determine its dynamics. How deep did the eddy extend? What was the best depth to retain floats within the eddy? Further investigation on these questions, the dynamics and implications of the cyclonic eddy are explored within this paper.

CTD PROFILING ON A SURFACE MOORING IN THE UPPER 500M FOR ENSO OBSERVATIONS

Christian Meinig, Scott Stalin, Billy Kessler NOAA/Pacific Marine Environmental Lab(PMEL)
Hugh Milburn (sole proprietor)

PMEL is developing subsurface instrumentation and platforms for long term ocean and atmospheric observations. The instrumentation includes a mooring profiler +crawler (PRAWLER) that is designed to replace discreet CTD sensors such as those on the ATLAS moorings currently used in the tropical moored buoy array. The PRAWLER instrument uses wave energy to profile up and down the mooring line and includes robust inductive modem protocols for realtime bi-directional data transmission and vehicle control. Two CTD PRAWLERS and surface buoys with MET were deployed in September 2012 on ~5200m moorings as part of the NASA led Salinity Processes in the Upper Ocean Regional Study (SPURS) at 25N 38W. To date, the PRAWLERS have made over 3000 profiles each, to depths up to 500m Wind, wave and MET data are also collected to correlate profiling efficiency with ocean conditions. The data and engineering design is presently being evaluated and compared to traditional sensors and ship CTD casts.

FEATURES OF GPS USE ON ARGOS-2 AND IRIDIUM TELEMETRY EQUIPPED DRIFTERS

Lunev E., Motyzhev S, Tolstosheev A.
Marine Hydrophysical Institute NASU / Marlin-Yug Ltd., 2, Kapitanskaya St., Sevastopol, 99011, Ukraine

GPS receivers are used on drifters to increase spatio-temporal resolution when environmental study in the Ocean. The drifters with drogues have submergence under influence of surface waves. The submergence is a reason to lose the communication between GPS receiver and satellites. As a result, the continuity of GPS locations can be lost. The possible decision of this issue is if GPS has permanent mode to be switched on. But power consumption in this case is too high and mean lifetime of drifter is near two months, even if the energy-conserving GPS chip is used. This report presents the results of investigations to build the drifters with drogues, which can provide continuity

of hourly GPS locations for three-year lifetime, when buoy has long time submerged. The study took place for buoys equipped with Iridium and Argos-2 modems. It was investigated the features of GPS use on SVP-B (41-cm float) and SVP-B mini (34-cm float) Marlin-Yug drifters, deployed in high and low latitudes. Also, it was studied the capabilities of SVP-BTC drifters with thermistor chains. As well the efforts were undertaken to reach the radio and electrical compatibility for such autonomous device as drifter, when there is a necessity to place within small volume the emitting transmitter and GPS receiver with high sensitivity and when both devices use same battery as the power source.

CHALLENGES WITH IRIDIUM 9602 MODEMS

Andy Sybrandy

Pacific Gyre

Most buoys deployed with Iridium in 2012 have a software problem which causes delays, sometimes very long delays. We will present why this happens.
