Day 1: Tuesday,23 September –Program

Activity	Time	Presentations
09:00 –10:00 Registration	09:15 – 10:00	**NIO Seminar Hall**
10:00 – 10:40 Welcome & Keynote Speakers	10:00–10:10	**Welcome: Dr. A SuryanarayanaNIO, Goa**
	10:10–10:20	**Inauguration: Dr. SWA Naqvi, Director, NIO, Goa**
	10:20– 10:30	**Keynote Address: 1. Dr. VSN Murty, Scientist-in-Charge, NIO RC, Visakhapatnam.**
	10:30– 10:40	**Keynote Address: 2. Mr.Darryl Symonds, Teledyne RDI**
Break	10:40– 11:00	**Tea**
11:00-13:00 Session 1	11:00 – 11:30	**Presentation 1:** What's new at Teledyne RDI; **Mr Darryl Symonds** & **Mr. Alan Kenny**
	11:30 – 12:00	**Presentation 2:** Guest Speaker, TBD
	12:00 – 12:30	**Presentation 3:**"Applications of Various ADCPs In Indian Waters - an experience at NIOT"; **Dr. B. K. Jena and V. Suseentharan**
	12:30 – 13:00	**Presentation 4:** Estimation of Suspended Sedimentation Using ADCPs**; Dr KVK Patnaik, Indian Maritime University, Visakhapatnam**
Lunch	13:00-14:00	**Lunch**
14:00-15:30	14:00 – 15:00	**Presentation 5:** ADCP Moorings; Presentations by **Mr. Rick Cole**, **RDSEA & Mr. Darryl Symonds, Teledyne RDI**

	15:00 – 15:30	**Presentation 6:** Long-term ADCP Moorings in the Indian Ocean: Intraseasonal Variability in the Observed Currents. **Dr VSN Murty, Scientist-in-Charge, NIO RC, Visakhapatnam**
Break	15:30 – 16:00 **Tea**	
16:00-17:30	16:00 – 17:00	**Technology Workshop:** "Measure Suspended Sediment with ADCP " **JeroenAardoom, Aqua Vision (Hydro & Oceanographic Consultancy)**
	17:00 – 17:30	Q & A

Day 2: Wednesday 24 September –Program

Time	Presentations
09:30 – 10:30	**ADCP Introduction - Darryl Symonds, Teledyne RDI** a. Background of ADCP current profiling b. 3 beams, 4 beams, and 5 beams c. Profiling Options: Broad bandwidth vs Narrow bandwidth d. ADCP Applications: Moored and Moving
10:30 – 11:00	**ADCP Data Review - Darryl Symonds, Teledyne RDI** a. Data Types and Displays: Attitude, Velocity, Correlation, Echo Intensity b. Methodology for Data Reviewing: Key Data Quality Indicators
11:00 – 11:15	**Tea Break**
11:15 – 12:30	**Waves Introduction -Darryl Symonds, Teledyne RDI** a. Background of Waves Measurements b. ADCP Wave Measurements c. ADCP Waves Parameters Output

12:30 – 13:00	**Presentation:** Indian Moored Buoy observation - **Dr R Venkatesan, NIOT, Chennai**
13:00 – 14:00	**Lunch Break**
14:00 – 15:30	**Sentinel V Data Review: In Search of the Perfect Wave, Darryl Symonds, Teledyne RDI** Review of a data collected off the California Coast by Scripps Institute of Oceanography will reveal the current and waves measurement capability of the Sentinel VADCP. Data will be reviewed using TRDI standard software package ***Velocity***.
15:30 – 16:00	**Tea Break**
16:00 – 17:30	**Technology Workshop:** Teledyne Blue View (Multibeam Imaging Sonar); **Presented by Mr. Alan Kenny for Mr. Ed Cheesman**

Day 3: Thursday, 25 September –Program

Time	Presentations
09:30 – 10:30	**Doppler Navigation – Mr. Alan Kenny, Teledyne RDI (Part I)** Introduction to our latest DVL technology and training on the fundamentals of Doppler Velocity Logs (DVL's), basic operation, diagnostics, and fundamental concerns for integration. Agenda will include: • Basics of Doppler Shift • Basic operational setup/software • Data output and interpretation • Ping rate and effect on accuracy • Effects and importance of Speed of Sound, temperature, salinity, turbidity, roll, pitch, yaw • Using a DVL at low altitude • Using a DVL at low and high velocities - limitations and effects on accuracy
10:30 – 11:00	**Tea Break**

11:00 – 12:30	**Doppler Navigation – Mr. Alan Kenny, Teledyne RDI (Part II)** • Differences related to beam orientation (Beam 3 forward vs. all beams at 45 degrees) • Causes of saturation and ringing • External sensors (Sound Velocity Probe, Temperature, and pressure sensors) • Sources of interference. • Using a DVL in conjunction with other acoustic sensors and the need for triggering • Basic maintenance • A look inside the DVL
12:30 – 13:00	**Presentation: "Localization methods for AUVs. Integration of Explorer DVL with Matsya, a micro-AUV " by Mr. Prashant Iyengar&KunalTyagi, IIT Bombay**
13:00 – 14:00	**Lunch**
14:00 – 14:30	**Presentation: "Design of DVL aided localization for littoral class AUV Sedna" by Mr. Akshay Raj Dayal and Aniket Ray, SRM University.**
14:30 – 15:00	**Citadel CTD Introduction - Darryl Symonds, Teledyne RDI** a. Background of CTD Measurements b. Citadel CTD Measurements c. Citadel CTD Advantages
15:00– 15:30	**Tea Break**
15:30– 16:00	**Long Range Data Review: Get the Full Profile and Facts - Darryl Symonds, Teledyne RDI** Review of data collected in the Indian ocean from 2 separate deep water moorings with Long Ranger ADCPs. We will explore the current velocity and echo intensity profiles that are possible. See how life in the ocean effects profiling range and how to recognize it is happening. Data will be reviewed using TRDI standard software package ***Velocity***.

16:00– 16:30	**Ocean Surveyor Data Review: See the Sites on the High Seas - Darryl Symonds, Teledyne RDI** Review of data collected off the coasts of Papua New Guinea and the Philippines from the Japanese research vessel Kaiyo using an Ocean Surveyor ADCP. We will explore the current velocity and echo intensity profiles that are possible. See how life in the ocean effects profiling range and how to recognize it is happening. Data will be reviewed using TRDI standard software packages such as ***Velocity*** and ***VMDAS***.
16:30 – 17:00	**Q&A / Wrap Up**