

Day 1 (Tuesday)		
9:00-9:15	Welcome and workshop briefing	E. Montes
9:15-9:45	Introductions: name, affiliation, location, study area, expectations (30 sec - 1 min ea * 23 participants + instructors)	
9:15-9:45	Networks: SARCE, MarineGEO, and P2P	P. Miloslavich, E. Duffy, E. Montes
9:30-9:50	UN Sustainable Development Goals #14 - Life under water	F. Muller-Karger
9:50-10:00	CBD Aichi Targets & Indicators	E. Klein
10:00-10:15	IPBES Assessment Reports	P. Miloslavich
10:15-10:30	Coffee break	
10:30-11:00	Cross-referencing GOOS Essential Ocean Variable (EOV) and GEO BON Essential Biodiversity Variable (EBV) frameworks	P. Miloslavich
11:00-11:15	OBIS for data sharing, analysis and discovery	E. Klein
11:15-11:30	Darwin Core (DwC) schema	E. Klein
11:30-12:00	Publishing your data in OBIS: the "how to" of the Integrated Publishing Toolkit (IPT)	E. Klein
12:00-13:00	Lunch at CEBIMar	
13:00-14:00	Introduction of Research & Data (optional 1 slide each - send template, push to Google Drive): 23 * 2 min ea	E. Montes
14:00-14:30	Intro to Reproducible Research Tools: R, Rmarkdown, Github	B. Best
14:30-15:00	Data wrangling (wide -> long), analysis (diversity) & visualization (hist, map) with R	B. Best
15:00-15:15	Coffee break	
15:15 - 18:00	Open computer lab work with exercises to go from data to interactive web page of analytical results	B. Best

Day 2 (Wednesday)		
9:00-9:10	Welcome and workshop briefing	E. Montes
9:10-9:30	Sandy beaches and their inhabitants (physical features, beach morphodynamic, animals on the beach, and their adaptations to live in a 3D habitat)	M. Di Domenico
9:30-10:15	Sandy beach monitoring programs around the world, and monitoring programs implemented in Brazil.	M. Di Domenico
10:15-10:30	Discussion	M. Di Domenico
10:30-10:45	Coffee break	
10:45- 11:15	Aggregate patterns of macrofaunal diversity: An interocean comparison	C.M. Barboza
11:15-11:30	Discussion	C.M. Barboza
11:30-12:00	Storm effects on intertidal invertebrates: increased beta diversity of few individuals and species	G.N. Corte
12:00-12:15	Discussion	G.N. Corte
12:15-13:00	Field work discussion/data collection - How the temperature affect invertebrate distribution in a sandy beach?	M. Di Domenico
13:00-14:15	Lunch at CEBIMar	
14:15 - 16:00	Field trip on the sandy beach - (Guaecá or Cabelo Gordo Beach). Sample collection and use of infrared thermography for thermal landscape characterization	M. Di Domenico
16:00-16:15	Coffee break	
16:15 - 18:00	Lab work, invertebrate taxonomy, creating a database	

Day 3 (Thursday)		
9:00-9:10	Welcome and workshop briefing	E. Montes
9:10-10:30	Rocky shore monitoring programs: lessons from the Oregon and Israeli Mediterranean coast and a vision for a global network	G. Rilov
10:30-10:45	Discussion	
10:45-11:00	Coffee break	
11:00-11:45	A mussel's view of the world: mosaics in environmental variability at biogeographic scales	B. Helmuth
11:45-12:00	Discussion	
12:00-12:45	Microhabitats, climate change and biogeography, with examples from the European coast	F. Lima
12:45-13:00	Discussion	
13:00-14:15	Lunch at CEBIMar	
14:15 - 15:00	Tools, part 1. Field data collection, creating a database and multivariate analysis of biodiversity data	G. Rilov
15:00-15:15	Discussion	
15:15-16:00	Tools, part 2. Biomimetic and heartbeat loggers, demonstration on local invertebrates	B. Helmuth / F. Lima
16:00-16:15	Coffee break	
16:00-16:15	Discussion	
16:15-17:30	Field trip on the rocky shore – observations of patterns measuring thermal landscapes. Logger deployment, infrared thermography (IR demonstration), and use of photo-quadrats	

Day 4 (Friday)		
9:00-9:10	Welcome and workshop briefing	E. Montes
9:10-11:15	MarineGEO PanAmex Experiment: Predation and fouling community development, exotic invasions and biodiversity - an experimental approach	E. Duffy
11:15-11:30	Coffee break	
11:30-11:45	Tools, part 3. 3D modelling, micro topography and land surface models to convert solar radiation into body temperatures	B. Helmuth / F. Lima
11:45 - 12:30	Experiments to study mechanisms behind patterns and to make predictions for the future in the face of climate change	G. Rilov
12:30 - 13:30	Lunch at CEBIMar	
13:30 - 14:00	Understanding environmental change using satellite remote sensing data - MBON Data Portal	F. Muller-Karger
14:00 - 14:20	Satellite biogeography and dynamic seascape maps as tools for scaling in situ biodiversity observations	M. Kavanaugh
14:20 - 15:00	Integrated visualization of OBIS records and satellite data (MBON Explorer)	B. Best
15:00-15:15	Coffee break	
15:15 - 17:30	Participant presentations	
17:30	Adjourn	