



National
Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL



TUM



con il patrocinio di
REGIONE
TOSCANA

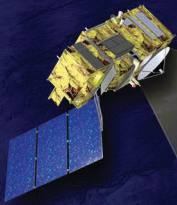


OSU
Oregon State
UNIVERSITY



→ 10th COASTAL ALTIMETRY WORKSHOP

PROGRAMME



21–24 February 2017 | Florence, Italy

DAY 1**Tuesday 21 February 2017**

8:30-8:35	Welcome to the SAR ALTIMETRY TRAINING COURSE	J. Benveniste
8:35-8:55	Radar Altimetry - Introduction to missions and applications	M. Restano; J. Benveniste
8:55-9:35	Overview on LRM, SAR, SARin & RDSAR Altimetry	M. Roca
9:35-10:55	SAR and SARin L1A to L2 processing; Strategies for different applications; options in SARvatore	S. Dinardo
10:55-11:25	Coffee Break	
11:25-11:45	Delay Doppler Altimeter Instrument Calibration	M. Scagliola
11:45-12:10	Overview on corrections to be applied & on validation against TG and other datasets	P. Cipollini; M. Passaro
12:10-12:35	ESA projects on Radar Altimetry	M. Restano; J. Benveniste
12:35-13:00	Fully focused SAR processing / Swath Processing	W. Smith
13:00-14:00	Lunch	

14:00-14:05	Welcome to CAW-10: Introduction to the 10th Coastal Altimetry Workshop	Chair: J. Benveniste
14:05-14:10	Session 1: Introduction and Seed questions	Chair: M. Passaro, W. Smith, P. Thibaut
14:10-15:50	S1: Waveforms and Retracking	Chair: M. Passaro, W. Smith, P. Thibaut
	From Deep Ocean to Inland Water: Homogeneous Retracker Solution for Continuous Observations	<u>P. Thibaut</u> ; J.C. Poisson; T. Moreau; F. Piras; S. Le Gac; F. Boy; N. Picot
	ALES Coastal Processing Applied to ERS: Extending the Coastal Sea Level Time Series	<u>M. Passaro</u> ; F.M. Calafat
	A New Retracking Technique for Brown-Peaky Altimetric Waveforms	<u>F. Peng</u> ; X. Deng
	Mission-Independent Classification of Altimeter Waveforms for Applications in the Open Ocean, at the Coastal Zone and Over Land	<u>C. Schwatke</u> ; D. Dettmering
	High-Rate Radar Altimeter Waveform Signatures of Internal Solitons in Tropical Marginal Seas	<u>J.C. Da Silva</u> ; J.M. Magalhaes; A. F. Cerqueira; E. Vieira
15:50-16:10	S1 Poster Flashes (5') + Discussion (15')	
	Advancements in the Usage of Envisat Individual Echoes (IEs)	<u>S. Vignudelli</u> ; R. Abileah; A. Scozzari
	Comparison with the Coastal Sea Surface Height Retrieved from Along-Track Jason-2 Continuous Waveforms and the HF Ocean Radar Data in the Tsushima Strait	X. F. Wang; <u>K. Ichikawa</u>
16:10-16:40	Coffee Break	

16:40-16:45	Session 2: Introduction and Seed questions	Chair: M.Cancet, M. J. Fernandes, M.-L. Frery
16:45-18:05	S2: Range and Geophysical Corrections	Chair: M.Cancet, M. J. Fernandes, M.-L. Frery
	Validation of Sentinel-3 Wet Tropospheric Correction	<u>M.J. Fernandes</u> ; C. Lázaro
	Performance of Sentinel-3 Surface Topography Mission Microwave Radiometer in Coastal Areas	<u>M.-L. Frery</u> ; M. Siméon; B. Picard; P. Féménias; C. Goldstein; H. Rebhan
	Exploitation of AIRWAVE for Retrieving the Wet Tropospheric Correction for Coastal Altimetry	<u>C. Lázaro</u> ; M.J. Fernandes; S. Casadio; E. Castelli; E. Papandrea; B.M. Dinelli; A. Burini; B. Bojkov; J. Bouffard
	ACCRA: A Study on Future Microwave Radiometers for Atmospheric Correction of Radar Altimeters on Coastal Regions	<u>M.L. Frery</u> ; B. Picard; J. Charlton; L. Eymard; F. Karbou; L. Hermozo; M. Martin-Neira
18:05-20:00	Ice breaker cocktail (Poster)	

DAY 2 Wednesday 22 February 2017

8:30-9:10	S2: Range and Geophysical Corrections (cont'd)	Chair: M.Cancet, M. J. Fernandes, M.-L. Frery
	Assessment of Range and Geophysical Corrections and Mean Sea Surface Models - Impacts on Sea Level Variability around the Indonesian Seas	E.Y. Handoko; <u>M.J. Fernandes</u> ; C. Lázaro
	Assessment of the FES2014 Tidal Currents on the Shelves Around Australia	<u>M. Cancet</u> ; F. Lyard; D. Griffin; L. Carrère; N. Picot

9:10-9:40	S2 Poster Flashes (15') + Discussion (15')	
	Analysis of Altimetry Range and Correction in a Flat Coastal Environment at Aix Island Sea-Level Observatory, France	<u>L. Testut</u> ; V. Ballu; M. Gravelle; P. Bonnefond; O. Laurain; E. Poirier
	Enhance Coastal Tide Modeling Using Cryosat-2: A Feasibility Study	<u>G. Piccioni</u> ; D. Dettmering; W. Bosch; F. Seitz
	Evaluation of the Dry and Wet Tropospheric Corrections for CryoSat-2 and Sentinel-3 Over Inland Waters	<u>M. J. Fernandes</u> ; C. Lázaro; T. Vieira
	Recent Improvement in MSS and Gravity field in Coastal and Arctic Regions	<u>O.B. Andersen</u> ; P. Knudsen
	Tidal Downscaling in a 3D (Structured) Circulation Model: A New Approach Based on Tailored 2D (Unstructured) Simulations	<u>F. Toublanc</u> ; <u>N. Ayoub</u> ; F. Lyard; P. Marsaleix; P. De Mey; M. Ghantous; T. Duhaut; D. Allain
9:40-9:45	Session 3: Introduction and Seed questions	Chair: P. Bonnefond, L. Fenoglio-Marc, R. Scharroo
9:45-10:25	S3: Performance and Cal/Val of Coastal Altimetry	Chair: P. Bonnefond, L. Fenoglio-Marc, R. Scharroo
	Coastal altimetry activities in the Sentinel-3 Validation Team	<u>P. Féménias</u> ; R. Scharroo, et al
	Performances over Coastal areas of the SAR Mode Processing in Sentinel-3A Products	<u>M. Raynal</u> ; S. Labroue; S. Urien; L. Amarouche; S. Jourdain; G. Quartly; <u>P. Féménias</u> ; J Benveniste; F. Boy; Dinardo...
10:25-10:55	Coffee Break	

10:55–11:55	S3: Performance and Cal/Val of Coastal Altimetry (cont'd)	Chair: P. Bonnefond, L. Fenoglio-Marc, R. Scharroo
	Coastal Altimetry for the North-Eastern Atlantic Shelf	<u>L. Fenoglio-Marc</u> ; S. Dinardo; C. Buchhaupt; B. Uebbing; R. Scharroo; J. Kusche; M. Becker; J. Benveniste
	Validation of CryoSat-2 and AltiKa Sea Level Anomaly in the Coastal Strip of the Gulf of Cadiz	<u>J. Gomez-Enri</u> ; P. Cipollini; S. Vignudelli; J. Coca
	Corsica: A Multi-Mission Absolute Calibration Site	<u>P. Bonnefond</u> ; O. Laurain; P. Exertier; T. Guinle; P. Féménias
11:55–12:55	S3 Poster Flashes (40') + S3 Discussion (15')	
	Satellite Altimetry in South-West Bass Strait	B. Legresy; C. Watson; <u>M. Cahill</u>
	Validation of Sentinel-3A Altimetry Data by Using In-Situ Multi-Platform Observations near Mallorca Island (Western Mediterranean)	<u>A. Sánchez-Román</u> ; E. Heslop; K. Reeve; D. Rodríguez; Y. Faugère; M. Torner; J. Tintoré; A. Pascual
	A Novel Method for Lakes Water Level Measurement from SAR-SARIN Mode Altimetry – SHAPE Project	<u>P. Fabry</u> ; <u>N. Bercher</u> ; A. Garcia Mondejar; J. Fernandes; C. Lázaro; D. Gustafsson; A. Ambrózio; M. Restano; J. Benvéniste
	Broadview Radar Altimetry Toolbox	<u>R. Escolà</u> ; A. Garcia-Mondéjar; G. Moyano; M. Roca; M. Terra-Homem; A. Friaças; F. Martinho; E. Schrama; M. Naeije; Ambrozio...

11:55–12:55	Evaluating the Performance of Sentinel-3 SRAL SAR Altimetry in the Coastal Zone, and Developing Improved Retrieval Methods. Early Results from the SCOOP Project	P. D. Cotton ; T. Moreau; E. Makhoul-Varona; M. Roca; P. Cipollini; M. Cancet; L. Fenoglio-Marc; M. Naeije; M.J. Fernandes
	X-TRACK Regional Altimeter Products for Coastal Applications: 2016 release	F. Léger ; F. Birol; N. Fuller; F. Niño; S. Fleury
	A New Era of Altimeter Products Towards High-Resolution	C. Dufau ; G. Dibarboure; M. Ablain; M.I. Pujol; C. Ubelmann; Y. Faugere; N. Picot; J.-D. Desjonqueres
	Sentinel-3 Surface Topography Mission: Overview and Status of Operations	P. Féménias ; R. Scharroo; C. Nogueira Loddo; S. Labroue; G. Quartly; J. Fernandez Sanchez; N. Picot
	GOCE User Toolbox and Tutorial	P. Knudsen; A. Ambrozio ; M. Restano ; J. Benveniste
	A Synergy Approach for the Validation of Coastal Altimetry Data in the Baltic Sea	N. Delpeche-Ellmann ; K. Pindsoo; N. Kudryavtseva; T. Soomere
	Improved Sea Surface Height from Satellite Altimetry in Coastal Zones: A Case Study in Southern Patagonia	L.S. Lago ; M. Saraceno; L. Ruiz Etcheverry; M. Passaro; F. Oreiro; E. D’Onofrio
	Inter-Comparison Between Different Along Track Altimeter Products, Numerical Ocean Models and In Situ Measurements: Development of a Dedicated Software	I. Isabelle ; F. Florence; F. Nino; C. Estournel; N. Fuller; Y. Faugère; C. Dufau
	SAR Altimetry Processing on Demand Service for CryoSat-2 and Sentinel-3 at ESA G-POD	J. Benveniste; S. Dinardo; G. Sabatino; A. Ambrózio ; M. Restano
Ships-Squat – A Prominent Effect and How It Can Be Calibrated	O. Roggenbuck ; J. Reinking	
12:55–14:00	Lunch	

14:00–14:05	Session 4: Introduction and Seed questions	Chair: C. Dufau, O. Roggenbuck, J. Wilkin
14:05–16:10	S4: Altimetry for Regional and Coastal Models	Chair: C. Dufau, O. Roggenbuck, J. Wilkin
	ARCOM, Enhancing the Link between Altimetry and Coastal Models	<u>C. Dufau</u> ; J. Wilkin; B. Moure; V. Kourafalou; P. De Mey
	Velocity and Sea Level Anomaly Wavenumber Spectra in the Coastal Ocean: Observations from HF-Radar and Altimetry Compared with Nested High-Resolution Models	<u>J. Wilkin</u> ; E. Hunter
	The Impact of Satellite Altimeter Observations on Estimates of Cross-Shelf Fluxes in the Mid-Atlantic Bight	<u>A. Moore</u> ; B. Laughlin; J. Wilkin; J. Levin; H. Arango
	A Multi-Technique Combination Method for Altimeter, Tide Gauge and Ships Data	<u>O. Roggenbuck</u> ; J. Reinking
	Impact of Coastal Altimetry Data in the Black Sea Physical Ocean Analysis System	A. Bonaduce; <u>M. Passaro</u> ; A. Storto
	Understanding Altimetry Signals in Near-Coastal Areas Using Underwater Autonomous Vehicles	<u>I. Borrione</u> ; P. Oddo; A. Russo; E. Coehlo
16:10–16:40	Coffee Break	
16:40–17:20	Integration of Coastal Altimetry Data in the Tuscan Coastal Observing System	<u>C. Brandini</u> ; B. Doronzo; M. Fattorini; C. Lapucci; S. Taddei; A. Ortolani; P. Cipollini
	High-Resolution Altimetry for the Eastern Canadian Shelf Regional Model	<u>C. Dufau</u> ; G. Smith; F. Davidson

17:20-18:00	S4 Poster Flashes (20') + S4 Discussion (20')	
	Coastal Sea-Level Variabilities in Downscaled Models Controlled by an Eddy-Resolving Variational Estimation System	<u>M. Kamachi</u> ; <u>N. Usui</u> ; <u>S. Nishikawa</u> ; <u>K. Sakamoto</u> ; <u>Y. Fujii</u>
	Impact of 4D-Var Assimilation of Coastal Altimetry Data in the Sicily Channel Model	<u>A. Olita</u> ; <u>I. Iermano</u> ; <u>R. Sorgete</u>
	Intercomparison of Sea Level Variation Across the Tsushima Strait Among Tide Gauge Data, a Coastal Altimetry Product and an Ocean Reanalysis FORA-WNP30	<u>N. Hirose</u> ; <u>N. Usui</u> ; <u>T. Wakamatsu</u> ; <u>Y. Tanaka</u> ; <u>T. Toyoda</u> ; <u>Y. Fujii</u> ; <u>Y. Takatsuki</u> ; <u>T. Kuragano</u> ; <u>M. Kamachi</u>
	Inter-Annual Variation of the Tsugaru Warm Current Revealed from the Long-Term Coastal Ocean Reanalysis	<u>T. Wakamatsu</u> ; <u>N. Hirose</u> ; <u>Y. Tanaka</u> ; <u>S. Nishikawa</u> ; <u>N. Usui</u> ; <u>Y. Takatsuki</u> ; <u>T. Kuragano</u> ; <u>M. Kamachi</u> ; <u>Y. Ishikawa</u>
	Multi-Scale Analysis of Coastal Altimetry Data, Multi-Sensor Observations and Numerical Modelling Over the North Western Mediterranean Sea	<u>M. Meloni</u> ; <u>J. Bouffard</u> ; <u>A. Doglioli</u> ; <u>A. Petrenko</u>
18:00-20:00	POSTER SESSION (and cocktail)	

8:30-8:35	Session 5: Introduction and Seed questions	Chair: J. Bouffard, J. Hausman, S. Karimova
8:35-10:15	S5: Applications I – Currents, Waves and Winds	Chair: J. Bouffard, J. Hausman, S. Karimova
	Coastal Mesoscale Structures at the Entrance to the Gulf of California	<u>M.Y. Torres Hernandez</u> ; A. Trasviña Castro; E. Pallas Sanz; D.A. Rivas Camargo
	Satellite Altimetry in the Continental Shelf of the Southwestern Atlantic, Argentina	<u>M. Saraceno</u> ; L.S. Lago; G.F. Paniagua; R. Ferrari; C. Provost; C. Artana; P. Martos; R. Guerrero
	Performance of Different Altimetry-Derived Products and Techniques for Manifesting Mesoscale Eddies in Coastal Areas	<u>S. Karimova</u>
	Poleward Currents from Coastal Altimetry: The West Coast of Southern Baja California, Mexico	<u>J. B. Valle Rodriguez</u> ; A. Trasviña Castro
	Poleward Currents from Coastal Altimetry: The West Coast of Southern Baja California, Mexico	<u>J. B. Valle Rodriguez</u> ; A. Trasviña Castro
10:15-10:45	Coastal Altimetry in Support to Marine Observatory and Marine Observatory in Support to Coastal Altimetry: Multi-Platform Validations of Altimetry for Monitoring the Variability of Coastal Fronts	<u>J. Bouffard</u> ; M. Melonie; J. Fernandes; C. Lázaro; S. Casadio; A. Doglioli; A. Petrenko; P. Femenias
	Coffee Break	

10:45-11:25	S5 Poster Flashes (25') + S5 Discussion (15')	
	Illustration of the High Performance of SARAL Ka-Band Altimeter in Observing the Mesoscale and Coastal Oceanic Features - Example of the Central Mediterranean Sea	<u>F. Jebri</u> ; F. Birol; B. Zakardjian; J. Bouffard; C. Sammari
	Utilizing SAR Imagery, Ocean Color, SST, and Radar Altimetry to Study Upwelling and Ocean Circulation in the Coastal Arabian Sea	<u>W.A. Qazi</u> ; A. Javad; A. Abbas
	Use of Coastal Altimetry Data in Submesoscale Process Studies	<u>J.G. Yoo</u> ; S.Y. Kim
	Evaluation of Operational Altimeter-Derived Ocean Currents for Shelf Sea Applications - a Case Study in the NW Atlantic	<u>D. Vandemark</u> ; H. Feng; J. Wilkin
	Seasonal Circulation in the Northern Bay of Bengal with Special Reference to Shelf-Slope Region	<u>M. Ishaque</u>
	The Norwegian Coastal Current Observed by CryoSat-2 SARIn Altimetry	<u>M. Idžanovic</u> ; V. Ophaug; O.B. Andersen
11:25-11:30	Session 6: Introduction and Seed questions	Chair: D. Cotton, K. Ichikawa, C. Lazaro, L. Fenoglio-Marc
11:30-12:50	S6: Applications II - Sea Level and Extreme Events	Chair: D. Cotton, K. Ichikawa, C. Lazaro, L. Fenoglio-Marc
	Validating Altimeter Estimates of Sea level Along the Southern Coast of Australia	<u>M.L. Cahill</u> ; B. Legresy; H. Bastos de Oliveira
	UK Sea Level Space Watch – Monitoring Regional Sea Level Variability around the UK from Satellite Altimetry	<u>D. Cotton</u> ; E. Ash; P. Cipollini; F.M. Calafat

11:30-12:50	The Estimation of Sea Level Rise Impact on Coastal Zones of the Eastern Adriatic Sea	<u>M. Grgic</u> ; R.S. Nerem; T. Bašić
	Coastal SAR and PLRM Altimetry in the German Bight and West Baltic Sea with Sentinel-3A and CryoSat-2	S. Dinardo; C. Buchhaupt; L. Fenoglio-Marc; R. Scharroo; J. Fernandes; M. Becker; J. Benveniste
12:50-14:00	Lunch	
11:25-11:30	Session 6: Introduction and Seed questions	Chair: D. Cotton, K. Ichikawa, C. Lazaro, L. Fenoglio-Marc
14:00-14:40	S6: Applications II - Sea Level and Extreme Events	Chair: D. Cotton, K. Ichikawa, C. Lazaro, L. Fenoglio-Marc
	Accurately Measuring Sea Level Change from Space in the Coastal Zone: an ESA Climate Change Initiative	<u>A. Cazenave</u> ; J.-F. Legeais; M. Ablain; G. Lamicol; J. Johannessen; M. Scharffenberg; G. Timms; O.B. Andersen; Cipollini...
	Combining Tide Gauge and Satellite Altimetry Data: Towards Monitoring Vertical Land Motion at the Coast	<u>G. Wöppelmann</u> ; M. Marcos
14:40-15:20	S6 Poster Flashes (25') + S6 Discussion (15')	
	The Value of SAR-in Altimetry for Gravity Prediction in Coastal Regions	<u>O.B. Andersen</u> ; A. Abulaitijang
	Sea Level Trends, Variability and Processes Around the Australian coast	<u>S. Royston</u> ; C. Watson; M. King; B. Legresy
	Coastal Sea Level from CryoSat-2 SARIn Altimetry in Norway	<u>M. Idžanovic</u> ; V. Ophaug; O.B. Andersen
	Monitoring Storm Surges using Satellite Altimetry	G. Han
	The Importance of Sentinel-3 for Extending the Arctic Sea Level Record	<u>O.B. Andersen</u> ; S.K. Rose; C. Ludwigsen; L. Stenseng

14:40-15:20	Mass Redistribution from Satellite Altimetry	L. Bao
	Assessment of a Coastal Altimetry Data Product in the Indonesian Coastal Waters	<u>J. Lumban-Gaol</u> ; S. Vignudelli; R.R. Leben; T. Osawa; <u>B.P. Pasaribu</u> ; A. Mansawan; A. Manuputty
	Assimilation of Blended Altimetry and Tide Gauge Observations in a North Sea – Baltic Sea Hydrodynamic Model for Storm Surge Forecasting	<u>K.S. Madsen</u> ; J.L. Høyer; W. Fu; C. Donlon
	Coastal Altimetry in Support of NASA's Oceans Melting Greenland (OMG) Project	<u>J. Larson</u> ; D. Masters; J. Willis; R.S. Nerem
15:20-16:30	Extended Coffee Break and Final Look at Posters	
16:30-17:30	Report from Session Chairs (10' each)	
17:30-18:30	Final Discussion, Recommendations and Closing Remarks	
19:30-22:00	Social Dinner (Non Hosted)	

9:00-9:40	SAR Altimetry Processing for Open Ocean, Sea Level Monitoring,/SLCCI Multi Mission datasets	L. Fenoglio-Marc
9:40-10:20	SAR Altimetry Processing for Coastal Oceanography	L. Fenoglio-Marc
10:20-10:50	SAR Altimetry Processing for Sea Level in Polar regions (e.g. CS-2 data as input to Tide Models)	O. Andersen
10:50-11:20	Coffee Break	
11:20-11:50	SAR Altimetry Processing for Inland Water: Lakes	N. Bercher
11:50-12:30	SAR Altimetry Processing for Inland Water: Rivers	N. Bercher
12:30-13:30	Lunch	
13:30-14:30	SARvatore Demo and Hands-On	S. Dinardo and M. Restano
14:30-15:30	DeDop Demo and Hands-On	M. Roca
15:30-16:00	Coffee Break	
16:00-16:45	BRAT Demo	R. Capote
16:45-17:15	GUT Demo	A. Ambrózio
17:15-17:45	Future Missions: Sentinel-6, SWOT, CryoSat Follow On	M. Roca and J. Benveniste
17:45-18:45	Wine & Cheese	

Detailed technical and scientific information
can be found at: www.coastaltimetry.org

