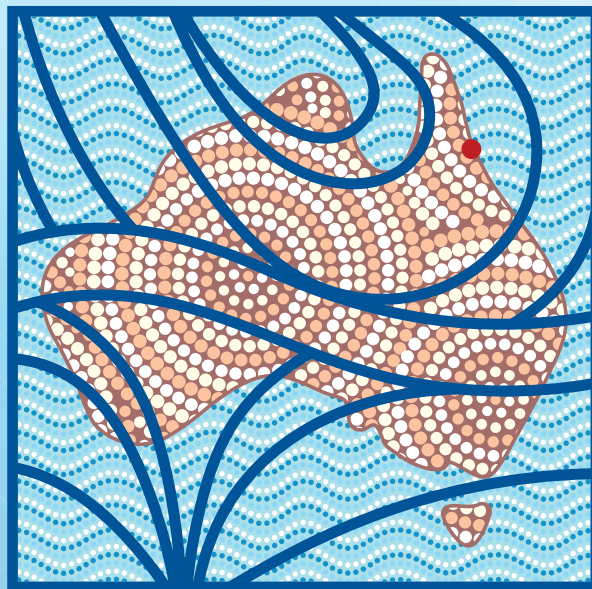


**SWIM
APOCMM**



Program

24th Salt Water Intrusion Meeting and the 4th Asia-Pacific Coastal Aquifer Management Meeting

Proudly supported by the
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**Queensland
Government**

**Cairns, Queensland, Australia
4-8 July 2016**

Proceedings of the
**24th Salt Water Intrusion Meeting
and the 4th Asia-Pacific Coastal
Aquifer Management Meeting**

Edited by Adrian D. Werner

CONTENTS

PREFACE

COMMITTEE

INVITED SPEAKERS

SPONSORS

POSTERS

ABSTRACTS

AUTHOR INDEX

Cite this publication as:

Werner, A.D. (ed.) (2016), Proceedings of the 24th Salt Water
Intrusion Meeting and the 4th Asia-Pacific Coastal Aquifer
Management Meeting, 4-8 July, 2016, Cairns, Australia.

The abstracts and papers published in this proceedings have been peer reviewed through processes administered by the proceedings Editor. Reviews were conducted by at least two independent expert referees with scientific expertise in the relevant discipline of each submission

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ISBN 1 876346 64 7

PREFACE

Welcome to the 24th Saltwater Intrusion Meeting (SWIM) and the 4th Asia-Pacific Coastal Aquifer Management Meeting (APCAMP), being held during 4th to 8th July 2016 in Cairns Australia. Both APCAMP and SWIM are dedicated to the provision of specialized for students, scientists, engineers, water resource managers and planners to share problems, methodologies and ideas to improve the investigation and management of coastal groundwater and related fields. For the first time in the meeting's 48-year history, SWIM is being held in "APCAMP territory", i.e. the Asia-Pacific region. This was the impetus for bringing SWIM and APCAMP together in Cairns.

The previous APCAMP events were held in Thailand (2009), Korea (2011) and China (2013), and following a three-year gap to synchronise with SWIM, APCAMP finds its way down under in 2016. Coastal problems in the APCAMP region are particularly acute, ranging from remote island communities entirely dependent on fragile freshwater lenses to some of the largest mega-cities on earth. The APCAMP region hosts 9 of the 10 world's most exposed cities to future coastal flooding impacts, with the top five being Kolkata (14 mil), Mumbai (11 mil), Dhaka (11 mil), Guangzhou (10 mil) and Ho Chi Minh City (9 mil) (Patmore, 2008; Risk Management Solutions®). Adaptation measures are critical for the future of the region, given the threat of sea-level rise, climate change, and increasing population pressures. For many Asia-Pacific nations, the problems are compounded by the limited access to local coastal hydrogeology expertise. Historically, the region has been significantly under-represented within the international coastal hydrogeology community, leaving Post and Abarca's (2010) call for an overview of the state of coastal aquifers in Asia largely unanswered. APCAMP has made positive strides in the call-to-arms to the region's hydrogeology community to highlight coastal aquifer management challenges in the Asia-Pacific region.

SWIM has a long history of mostly biennial meetings dating back to 1968. From 1968 to 2006, SWIM meetings were exclusively hosted in European countries. Following the merger with the Salt Water Intrusion in Coastal Aquifers (SWICA) group, formed in 2001, it was decided that SWIM meetings would alternate between European and non-European host cities, with the first being held in Florida in 2008. Since then, conferences in Portugal (2010), Brazil (2012) and Germany (2014) have helped solidify the SWIM conference as the leading world meeting of experts on coastal aquifers and related fields.

The respective SWIM and APCAMP families are close knit, and the meetings have traditionally represented a reunion of friends and colleagues, and a baptism into the field of many of the future trailblazers in coastal aquifer investigation and management. Given the challenges of the APCAMP region and the rich history of SWIM, there has been no better time to share new ideas and reflect on the challenges ahead in coastal hydrogeology at this joint SWIM-APCAMP event!

Coastal hydrogeology is a critical discipline in the sustainability debate in Australia. Fresh groundwater is drawn from alluvial, fractured rock and karst aquifers exposed to climates ranging from arid to tropical. Vulnerable groundwater-dependent ecosystems are key features throughout the nation's coastal fringe, where 84% of the growing population resides. The vast Australian coastline borders many landscapes of highly productive alluvial and deltaic sediments, supporting extensive agricultural industries that rely heavily on coastal groundwater for irrigation. This is particularly the case in Queensland, where sugarcane is a feature of many coastal towns between Mossman in the far north to the southern border with New South Wales. Over 3500 sugarcane farms in Queensland produce some 3.8 million tonnes of raw sugar annually. With the fragile Great Barrier Reef a receiving environment for runoff, the nutrient loads from coastal agriculture have become a hot topic amongst catchment management authorities in Queensland. Groundwater pathways are key components of the oceanic nutrient load. The Great Barrier Reef is amongst many natural assets in Australia that bring environmental groups and the tourism, agricultural and mining industries head-to-head, requiring the application of innovative

groundwater solutions. Coastal hydrogeology plays a key role in many of these issues, and the demand for expert opinion and the application of world-leading techniques is frequent and multi-faceted in this country.

The SWIM-APCAMP presentation schedule and poster sessions have strong representation from key leaders in coastal hydrology, salt water intrusion and related themes, combined with exciting new ideas and achievements from students and other newbies to the discipline. A successful call for Abstracts drew 112 submissions from 20 countries, with an approximately even split of authors from the APCAMP region and other areas. The presentations cover subjects relating to field applications, geochemistry and age-dating, geophysics, interface approaches, island hydrogeology, laboratory experimentation, management, numerical modelling, ocean-groundwater interactions, saltwater intrusion process understanding, submarine groundwater discharge and innovative case studies. Featured presentations highlight leading examples of research achievements and global challenges on topics of climate change, groundwater-ocean interaction, analytic methods, atoll hydrogeology, numerical modelling, submarine groundwater discharge and offshore groundwater.

It is a tremendous honour to host international leaders and enthusiasts of coastal hydrogeology to my state-of-origin, Queensland; a treasure trove of natural assets, rich cultural heritage and Australians passionate for sport and adventure. I trust the event leaves you with lifelong memories, and that you take advantage of the many great offerings of this region, typified by rainforest, coral reef, a menagerie of unique wildlife, and salt-of-the-earth locals raised on sunshine, a love of the ocean, long weekends and rugby league. The conference dinner and field excursion will bring all of these elements to life in an evening and day trip that promise to highlight the wonders of the natural assets and cultural heritage of the Cairns region.

A sincere debt of gratitude is owed to the energetic team of students and staff from Flinders University for their contributions in organising and running SWIM-24 and APCAMP-4. Thanks also to Phil Plevin and Associates, who provided tremendous support across

the entire gamut of conference organisation. Valuable support was provided by the International Advisory Committee and the Scientific Committee, who were responsive and helpful in their timely feedback and abstract reviews. Lastly, this conference would not have been possible without the patience, sacrifices and unwavering support of Allison, Ebony, Xanthe and Isaac.

On behalf of the International Advisory Committee, I welcome participants to Cairns, Australia, and sincerely hope that you enjoy the SWIM-24/APCAMP-4 conference and your Australian adventure. The great distances that many attendees have travelled are greatly appreciated. Your participation is the foundation and primary goal of the meeting.

Organiser of SWIM-APCAMP 2016
Adrian Werner

COMMITTEE

Convenor

Prof. Adrian Werner, Flinders University, Australia

International Advisory Committee

Prof. Jimmy Jiao, Hong Kong University, Hong Kong

Dr Johannes Michaelen, CONSULAQUA, Germany

Prof. Holly Michael, Delaware University, USA

Prof. Namsik Park, Dong-A University, Korea

Dr Vincent Post, Flinders University, Australia

Dr Adam Szymkiewicz, University of Technology, Poland

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Christian Langevin, US Geological Survey, Reston, USA

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Perry de Louw, Deltares, Utrecht, the Netherlands

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Shaul Sorek, Ben-Gurion University of the Negev, Israel

Thomas Stieglitz, Centre for Tropical Water & Aquatic Ecosystem Research, James Cook University, Australia, and CEREGE, Technopôle de l'Arbois-Méditerranée, France

Leonard Stoeckl, Federal Institute for Geosciences and Natural Resources, BGR, Hannover, Germany

Pieter Stuyfzand, VU Universityamsterdam, the Netherlands

Michael Trefry, CSIRO, Kingston, Australia

Ray Volker, University of Queensland, Brisbane

Kristine Walraevens, Ghent University, Belgium

Yoseph Yechieli, Geological Survey of Israel, and Ben Gurion University

INVITED SPEAKERS



Gualbert Oude Essink

Deltares, Utrecht, the Netherlands

Gualbert Oude Essink is hydrogeologist at Deltares, Unit Subsurface and Groundwater Systems, and part-time associate professor at Utrecht University.

His expertise is on modelling of variable-density groundwater flow and solute transport under palaeo, flooding, drought, global & climate change conditions.

Jimmy Jiao

Hong Kong University



Professor Jiao obtained his BEng and MEng from China University of Geosciences (Wuhan), China, and PhD from the University of Birmingham, UK. He has been working as an Editor of Hydrogeology Journal since 2008

and also worked as Associated Editor for Ground Water from 2002 to 2010.

Christian Langevin

United States Geological Survey, USA



Dr. Christian Langevin is a research hydrologist with the U.S. Geological Survey Office of Ground Water in Reston, VA. His present research for the Office of Groundwater centers on

development, testing and application of MODFLOW, SEAWAT, and other numerical modeling programs.

Holly Michael

University of Delaware, USA



Holly Michael is an Associate Professor in the Departments of Geological Sciences and Civil and Environmental Engineering and the Unidel Fraser Russell Chair for the Environment at the

University of Delaware, USA. Her research interests include coastal hydrogeology, groundwater-surface water interactions, water resource management, and geostatistics.



Tim Munday

CSIRO, Australia

Tim Munday is a Research Group Leader in CSIRO Mineral Resources, responsible for a multidisciplinary team of geophysicists, geologists, geochemists and

hydrogeochemists who work on the characterisation of cover sequences across Australia, including, but not limited to, coastal aquifers and sediment packages, and inland palaeovalley sequences and regoliths.

Peter Sinclair

Secretariat of the Pacific Community



Peter Sinclair is a hydrogeologist with over 20 years experience, the last 9 years living and working in the Pacific. Working at the Pacific Community in

the Water and Sanitation Programme, he works predominantly with government and communities in atolls to assess and develop water resources.

Thomas Stieglitz

Centre for Tropical Water & Aquatic Ecosystem Research, James Cook University, Australia, and CEREGE, Technopôle de l'Arbois-Méditerranée, France



Thomas Stieglitz is a Senior Research Fellow at the Centre for Tropical Water & Aquatic Ecosystem Research TropWATER at James Cook University, Australia, and concurrently holds a chair of excellence at the Centre de Recherche et d'Enseignement de Géosciences de l'Environnement (European Centre for Teaching and Research In Geosciences) CEREGE in Aix-en-Provence, France.



Sustainably managing our water resources

The Queensland Government is reducing the risk of seawater intrusion by sustainably managing our coastal groundwater resources

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Cairns, Queensland, Australia | 4-8 July 2016

POSTERS

Case Study Investigations of Coastal Aquifers

P-1 Seawater intrusion of the coastal groundwater: A case study in Cox's Bazar, Bangladesh, Suraiya Fatema

P-2 Effect of surface water use on mitigation of GW salinization in a semi-arid coastal shallow aquifer setting: a case study of lower Lebna watershed, Tunisia, Atsushi Kawachi

P-3 Increasing the availability of freshwater for agriculture by improving local hydro(geo)logical conditions, Dieter Vandeveld

Climate Change and Sea-Level Rise Impacts

P-4 Potential Influence of Climate Change and Anthropogenic Effects, on Groundwater Resources in the Northern Groundwater Province, Qatar, Elnaiem Elobaid

P-5 Fresh groundwater reserves in 40 major deltas under global change, Joeri van Engelen

Coastal Investigations involving Geophysics

P-6 HEM survey in Zeeland (NL) to delineate the 3D groundwater salinity distribution - Pilot study: Canal Zone Gent-Terneuzen , Bernhard Siemon

P-7 Geophysical Field Measurements for Characterizing Sea Water Intrusion, Kees-Jan van der Made

Geochemistry and Age-Dating of Coastal Settings

P-8 Hydrochemical evolution of groundwater in a coastal reclaimed land in Shenzhen, China, Kouping Chen

Island Hydrogeology

P-9 Water supply on the Frisian Islands, North Sea, Georg Houben

P-10 Effect of tides, waves and precipitation on groundwater flow dynamics on Sable Island, Canada., Victoria Trglavcnik

Management of Coastal Groundwater

P-11 In search for a salt tolerant potato to reduce the freshwater demand in saline coastal areas, Perry de Louw

P-12 Case study on an effective method for monitoring temporal change in the freshwater-salt water interface location and freshwater lens thickness, Yongcheol Kim

P-13 Vulnerability of offshore fresh groundwater to anthropogenic impacts: Investigation using analytic and numerical modelling techniques, Jason Thomann

P-14 Utilization of Reclaimed Island as Groundwater Reservoir, Esther van Baaren

Numerical Modelling and Parameter Estimation

P-15 The influence of the heterogeneity and variable density in Theis and Cooper-Jacob interpretation of pumping tests. The case of Motril-Salobreña aquifer (SE Spain), Maria Luisa Calvache

P-16 Modelling sea-aquifer contact in salt water intrusion issues: conditions and possibilities, Juan Pedro Sanchez-Ubeda

P-17 Estimation of hydraulic diffusivity using tidal extracted oscillation from groundwater head affected by tide, Juan Pedro Sanchez-Ubeda

Ocean-Groundwater Interactions

P-18 The mechanism of groundwater fluctuations induced by sea tides in unconfined aquifers, Elad Levanon

P-19 A comparative study of two transects at Dan'ao River's estuary in Daya Bay, China, Gang Li

P-20 Seasonal distribution of radium isotopes and submarine groundwater discharge in Laizhou Bay, China, Xuejing Wang

P-21 A preliminary study on influence of seawater-groundwater exchange on nutrients enrichment in a tidal mangrove marsh in Daya bay, China, Kai Xiao

Seawater Intrusion Processes and Laboratory Studies

P-22 The effect of cutoff walls on saltwater intrusion is stratified coastal aquifers: Experimental and Numerical study, Antoifi Abdoulhalik

P-23 Offshore hydro-stratigraphy of the Gambier embayment and the potential for an offshore groundwater resource, Andrew Knight

P-24 Saltwater circulation patterns within the freshwater's saltwater interface in coastal aquifers, Imri Oz

P-25 The investigation of sea water intrusion on opening estuary barrage of Nakdong River using numerical simulation model, Sang Park

P-26 Initiation of unstable flow in salt marshes, Chengji Shen

PROGRAM

Sunday 3 July 2016 - SWIM-APCamm 2016			
PRE-CONFERENCE ICE BREAKER			
Start	End	Title	Speaker(s)
4.00pm	6.00pm	Registrations Open - Trinity Esplanade Room (Lobby Area)	
6.00pm	7.00pm	Welcome Reception and Australian Animal Encounter - Poolside Pavilion Room	

Monday 4 July 2016 - DAY 1 - SWIM-APCamm 2016			
Start	End	Topic	Speaker(s)
		Welcome and Opening Ceremony - Trinity Esplanade Room	
8:00am	5:00pm	Registration Open - Trinity Esplanade Room (Lobby Area)	
9:00am	9:05am	Opening Welcome	Adrian Werner
9:05am	9:15am	Opening Address	James Purtill, Director-General, Department of Natural Resources and Mines
9:15am	9:25am	Welcome to Cairns	Cairns City Mayor – Cr Bob Manning OAM
9:25am	9:40am	Regional water and NRM issues	Mike Berwick Wet Tropics NRM Board
9:40am	9:55am	Groundwater issues in Australia	Narelle Neumann Geosciences Australia
9:55am	10:15am	SWIM-APCamm reflections, and close of session	Jimmy Jiao and Vincent Post
10:15am	11:00am	Morning Tea – Clifton/Ellis Room	
		Session 1 - Managing Coastal Groundwater I Chair: Chunhui Lu Trinity Esplanade Room	
11:00am	11:25am	Featured Presentation: Fresh groundwater resources in deltaic areas under climate and global stresses, with examples from Vietnam, Egypt, Bangladesh and The Netherlands	Gualbert Oude Essink
11:25am	11:40am	A self-flowing seepage system to protect a freshwater lens from local sea level rise	Perry de Louw
11:40am	11:55am	The combined effects of over-abstraction, irrigation and managed aquifer recharge on seawater intrusion in coastal aquifers subject to intensive agriculture: a modeling study from 50 years of historic observations to future management scenarios in Korba, Tunisia	Jean-Christophe Comte
11:55am	12:10pm	The legacy of sugar and salt - a success story in managing Bundaberg's coastal aquifers	Camille Jendra
12:10pm	12:25pm	Taming of brackish seepage	Frank Smits

12:25pm	1:50pm	Lunch - Poolside	
		Session 2 - Advances in Numerical Models and their Application Chair: Frans Schaars Trinity Esplanade Room	
1:50pm	2:05pm	Modeling of unsaturated-saturated groundwater flow in the presence of saltwater intrusion using HYDRUS and MODFLOW numerical codes	Adam Szymkiewicz
2:05pm	2:20pm	Data Analysis and Numerical Modeling of Seawater Intrusion Through Conduit Networks in a Coastal Karst Aquifer	Bill Hu
2:20pm	2:35pm	Effects of macro-pores on water flow in coastal subsurface drainage systems	Ling Li
2:35pm	2:50pm	A numerical investigation of preferential and barrier flow effects on solute transport in otherwise permeable rocks	Megan Sebben
2:50pm	3:05pm	Numerical investigations on the onset and development of salt flat in estuarine wetland	Chenming Zhang
3:05pm	3:35pm	Afternoon Tea - Clifton/Ellis Room	
		Session 3 - Ocean-Groundwater Interactions Chair: Holly Michael Trinity Esplanade Room	
3:35pm	4:00pm	Featured Presentation: Groundwater-ocean interaction and its effects on coastal ecological processes – are there groundwater-dependent ecosystems in the coastal zone?	Thomas Stieglitz
4:00pm	4:15pm	Experimental investigation of the flow dynamics within sandy coastal barriers under different water level and wave conditions	Gabreil Rau
4:15pm	4:30pm	Effect of waves on nearshore groundwater dynamics and chemical fluxes to coastal waters	Clare Robinson
4:30pm	4:45pm	Submarine Groundwater Discharge as a Source of Nutrients to an Estuary: Fresh vs. Recirculated	Mahmood Sadat-Noori
4:45pm	7:30pm	Posters - Clifton/Ellis Room	

PROGRAM

Tuesday 5 July 2016 - DAY 2 - SWIM-APCamm 2016			
Start	End	Topic	Speaker(s)
8:30am	10:30am	Registrations Open - Trinity Esplanade Room (Lobby Area)	
		Session 4 - Interface Approaches: Development and Application Chair: Mike Trefry Trinity Esplanade Room	
8:45am	9:00am	Announcements	
9:00am	9:15am	Saltwater intrusion in reverse: Riverine freshwater lenses of the Murray River, Australia	Adrian Werner
9:15am	9:30am	Controlling seawater intrusion in unconfined coastal aquifers: injection or infiltration?	Chunhui Lu
9:30am	9:45am	First-order analysis of offshore groundwater in the Perth Basin, Western Australia, using analytic and numerical modelling	Leanne Morgan
9:45am	10:00am	Development of a unstructured sharp-interface model for MODFLOW	Joseph Hughes
10:00am	10:15am	SWI or SEAWAT? Why not both?	Frans Schaars
10:15am	10:45am	Morning Tea - Clifton/Ellis Room	
		Session 5 - Coastal Investigations involving Geophysics I Chair: Helga Wiederhold Trinity Esplanade Room	
10:45am	11:10am	Salt Water Intrusion in NW-Western Australia – Regional groundwater models require data from regional-scale airborne geophysical surveys	Tim Munday
11:10am	11:25am	Imaging Saltwater Intrusion Along the Monterey Bay Coast Using Long Offset Electrical Resistivity Tomography	Meredith Goebel
11:25am	11:40am	Monitoring Well Optimization for Surveying the Fresh/ Saline Groundwater Interface in the Amsterdam Water Supply Dunes	Pierre Kamps
11:40am	11:55am	Effects of 25 years of deep fresh water infiltration on natural saline water in coastal area of Castricum, the Netherlands	Lucas Borst
11:55am	12:10pm	Groundwater-Surface Water Interactions in the Poldered Landscape of Southwest Bangladesh	Chelsea Peters

12:10pm	1:25pm	Group Photo and Lunch - Poolside	
		Session 6 - Geochemistry and Age-Dating of Coastal Settings Chair: Pieter Stufzand Trinity Esplanade Room	
1:25pm	1:40pm	The Effect of salinization and Freshening Events on Nutrients and Trace Elements	Yoseph Yechieli
1:40pm	1:55pm	Mass balancing to define major hydrogeochemical processes in salinizing dolomitic limestone aquifers: Example from Eastern Mediterranean (Lebanon)	Wisam Khadra
1:55pm	2:10pm	Complex hydrogeochemistry and tidal influence from dunes to beach slope in the central coastal plain of Belgium	Kristine Walraevens
2:10pm	2:25pm	Hydrogeochemical studies on the enrichment and mobilizing mechanisms of heavy metals in a coastal aquitard-aquifer system	Ya Wang
2:25pm	2:40pm	Age-dating water in saltwater – freshwater systems: old tracer weaknesses and new possibilities from radioactive noble gas isotopes (85Kr, 39Ar, 81Kr)	Axel Suckow
2:40pm	3:10pm	Afternoon Tea - Clifton/Ellis Room	
		Session 7 - Island Hydrogeology Chair: Georg Houben Trinity Esplanade Room	
3:10pm	3:35pm	Featured Presentation: Sustainability of freshwater lenses in atoll environments	Peter Sinclair
3:35pm	3:50pm	Formation and hydrogeochemistry of a freshwater lens on a sandbar island in saltwater lake Grevelingen, Netherlands	Pieter Stuyfzand
3:50pm	4:05pm	Assessment of climate variability and abstraction impacts on the Bonriki freshwater lens, Tarawa, Kiribati	Sandra Galvis
4:05pm	4:20pm	How long does the recovery of a freshwater lens take after a massive saltwater inundation? Experiences from the island of Baltrum, Germany, after the 1962 flood disaster	Georg Houben
4:35pm	6:30pm	Soccer Match	

PROGRAM

Wednesday 6 July 2016 - DAY 3 - SWIM-APCAMP 2016			
Start	End	Topic	Speaker(s)
8:30am	10:30am	Registrations Open - Trinity Esplanade Room (Lobby Area)	
		Session 8 - Numerical Modelling using SEAWAT Chair: Joseph Hughes Trinity Esplanade Room	
8:50am	9:00am	Announcements	
9:00am	9:25am	Featured Presentation: Past, present, and future directions for saltwater intrusion modeling using SEAWAT	Christian Langevin
9:25am	9:40am	Regional scale hydrogeological modelling of saltwater intrusion in Southern Denmark	Rena Meyer
9:40am	9:55am	Paleo-hydrogeological modelling of the coastal fresh-saline distribution since the late Pleistocene in the Vietnamese Mekong Delta	Van Hung Pham
9:55am	10:10am	Global analysis of fresh groundwater resources in coastal zones with respect to future risks	Daniel Zamrsky
10:10am	10:40am	Morning Tea - Clifton/Ellis Room	
		Session 9 - Seawater Intrusion Processes: Laboratory Analyses Chair: Vincent Post Trinity Esplanade Room	
10:40am	10:55am	Laboratory-scale simulation of saltwater intrusion into island aquifer: San Andrés Island case study	Nathalia Tinjaca
10:55am	11:10am	Transient analysis of saltwater intrusion dynamics	Ashraf Ahmed
11:10am	11:25am	Salinization of water table due to seawater intrusion	Sugiarto Badaruddin
11:25am	11:40am	Numerical and Laboratory Investigations of Mitigating Salt Water Intrusion and Lowering Groundwater Level in Low Lying Coastal Areas	Namsik Park
11:40am	11:55am	Experimental laboratory observation of freshwater lens in stable riverine setting: Examination of the analytical solution	Atsushi Kawachi
11:55am	12:10pm	Is sea water intrusion by groundwater over-abstraction even worse than what we expected?	Leonard Stoeckl

12:10pm	1:30pm	Lunch - Poolside	
		Session 10 - Case Study Investigations of Coastal Aquifers Chair: Namsik Park Trinity Esplanade Room	
1:30pm	1:45pm	Monitoring Salt Water Intrusion During Construction of a Road Tunnel under the Martwa Wisla River in Gdansk	Beata Jaworska-Szulc
1:45pm	2:00pm	A preliminary modeling study of reversibility of seawater intrusion after well field closure	Dongmei Han
2:00pm	2:15pm	Investigation of seawater intrusion in the deep Leederville and Yarragadee aquifers, Perth, Western Australia	Aine Patterson
2:15pm	2:30pm	Determining flow patterns in coastal aquifers: Results of a case study in South Australia	Vincent Post
2:30pm	2:45pm	Salt Water Intrusion Dynamics of a Freshwater Lens in a Multi-Layer Fractured Rock Aquifer System	Vincent Post
2:45pm	3:15pm	Afternoon Tea - Clifton/Ellis Room	
		Session 11 - Submarine Groundwater Discharge Chair: Clare Robinson Trinity Esplanade Room	
3:15pm	3:40pm	Featured Presentation: Submarine Groundwater Discharge as a Significant Nutrient Source to the South China Sea	Jimmy Jiao
3:40pm	3:55pm	Flow and nutrients exchange between seawater and groundwater in different types of wetlands at Jiaozhou Bay, China	Wenjing Qu
3:55pm	4:10pm	Studying the spatial heterogeneity of submarine groundwater discharge with direct measurements and radioactive tracers	Carlos Duque
4:10pm	4:25pm	Submarine fresh groundwater discharges estimated by different methods in the Jiaozhou Bay, China	Hailong Li
6:30pm	11:00pm	Conference Dinner - Poolside Pavilion Room	

PROGRAM

Thursday 7 July 2016 - DAY 4 - SWIM-APCAMP 2016

CONFERENCE FIELD TRIP

Friday 8 July 2016 - DAY 5 - SWIM-APCAMP 2016			
Start	End	Topic	Speaker(s)
8:30am	10:30am	Registrations Open - Trinity Esplanade Room (Lobby Area)	
		Session 12 - Coastal Investigations involving Geophysics II Chair: Jean-Christophe Comte Trinity Esplanade Room	
8:50am	9:00am	Announcements	
9:00am	9:15am	Improving hydrogeological models by aeroelectromagnetic measurements – examples from project NAWAK	Helga Wiederhold
9:15am	9:30am	Validation of Airborne EM	Dieter Vandevælde
9:30am	9:45am	FRESHEM: characterization of the fresh-saline groundwater distribution in the Province of Zeeland, The Netherlands	Esther van Baaren
9:45am	10:00am	Monitoring the effect of tides and storm surges on coastal fresh groundwater lenses	Sebastian Huizer
10:00am	10:30am	Morning Tea - Clifton/Ellis Room	
		Session 13 - Saltwater-Freshwater Processes in Complex Settings Chair: Jimmy Jiao Trinity Esplanade Room	
10:30am	10:55am	Featured Presentation: Geological Influence on Salinity Distributions and Submarine Groundwater Discharge on the Continental Shelf	Holly Michael
10:55am	11:10am	Construction of Large-Scale Saltwater Intrusion Model for Highly Heterogeneous Geology	Torben Sonnenborg
11:10am	11:25am	Anomalously low pressures in a transmissive coastal aquifer, San Diego, California, United States	Wes Danskin
11:25am	11:40am	Formation mechanisms of terrestrial freshwater lenses	Tariq Laattee
11:40am	11:55am	Salt Water – Freshwater Interaction within the Lower River Murray Floodplain	Juliette Woods

11:55am	1:15pm	Lunch - Poolside	
		Session 14 - Managing Coastal Groundwater II Chair: Adam Szymkiewicz Trinity Esplanade Room	
1:15pm	1:30pm	The IAH-CAD-CDZ website a tool for collecting and sharing information on coastal aquifers researches and management	Giuseppe Sappa
1:30pm	1:45pm	Optimal groundwater monitoring network design for water quality compliance and adaptive management of coastal and other managed aquifers	Sreekanth Janardhanan
1:45pm	2:00pm	Decision Making Strategies for Integrated Water Resources Management	Shaul Sorek
2:00pm	3:00pm	A Case Study on the Management of Coastal Aquifers in North Queensland	Amy Becke and Brett Andersen
3:00pm	3:20pm	Next Conference + Closing remarks	Adrian Werner and Adam Szymkiewicz

