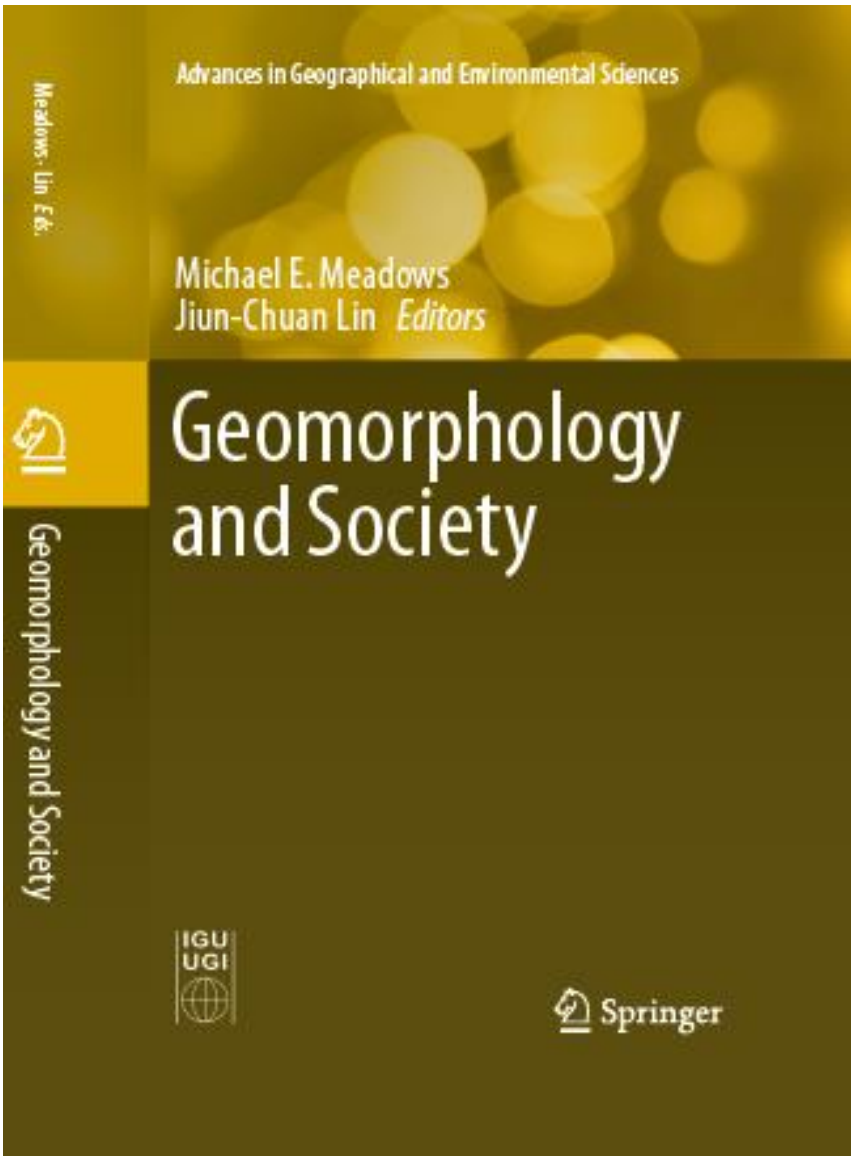
C12.41 Commission on Geomorphology and Society

Commission Report 2014-2016



Contents

1. The Mission of the Commission

The target of the Commission is to contribute to the strengthening of collaborative work among geomorphologists and human/social scientists and geographers. The aims that could be achieved by the target are three folds: (1) to advance physical geographic knowledge through involving discourses among geomorphologists and human geographers and other social scientists; (2) to fostering transdisciplinary capacity building for young geomorphologic researchers, and (3) to develop transdisciplinary knowledge of geomorphology and social sciences so that applied geomorphology could become much comprehensive and thus benefit human society. Followings are listed missions:

1) To promote international collaboration in geomorphology within the IGU community.

2) To strengthen scientific cooperation with the International Association of Geomorphologists (IAG) and other international bodies related to geomorphology field.

3) To advance applied geomorphology research for policy makers and societal betterment.

4) To stimulate interaction and collaborative work among environmental scientists, in particular leading work teams in different aspects of geomorphology.

5) To strengthen scientific discourses among numerical, experimental and field observing geomorphologists.

6) To foster the exchange of and the dissemination of geomorphologic knowledge.

7) To organize and hold special sessions within the IGU Congress and Conferences, and in other academic forums.

2. Commission Members

Chair: Jiun-Chuan Lin, Taiwan	jclin@ntu.edu.tw
Vice Chair: Irasema Alcántara-Ayala, Mexico	irasema@igg.unam.mx
Jonathan French, UK	j.french@ucl.ac.uk
Beate M.W. Ratter, Germany	ratter@geowiss.uni-hamburg.de
Yuichi S. Hayakawa, Japan	hayakawa@csis.u-tokyo.ac.jp
Werner Nel, South Africa	WNel@ufh.ac.za
Joy Obando, Kenya	obando.joy@ku.ac.ke
Margreth Keiler, Swiss	margreth.keiler@giub.unibe.ch
Herve Regnauld, France	herve.regnauld@uhb.fr
Chuan Tang, China	tangc707@gmail.com
Emmanuel Reynard, Swiss	Emmanuel.Reynard@unil.ch
Paul D. Sumner, South Africa	paul.sumner@up.ac.za
Secretary: Su-Min Shen, Taiwan	shensumin@gmail.com

Chair: Prof. Jiun-Chuan Lin

Department of Geography
National Taiwan University
Professor
No. 1 Sec. 4 Roosevelt Rd. Taipei, Taiwan
Vox: 886-2-3366-5831, 886-2-33665821
E-mail: jclin@ntu.edu.tw
URL:
http://www.geog.ntu.edu.tw/index.php?option=com_content&view=article&id=553&Itemid=120&lang=en
Research interests: environmental monitoring, mass wasting, watershed erosion, and disasters

---

Vice-Chair: Prof. Irasema Alcántara-Ayala

Institute of Geography
National Autonomous University of Mexico (UNAM)
Professor
Circuito Exterior, Ciudad Universitaria

04510, Coyoacán, México, D.F.
México City, Mexico
Vox: +52 55 56224335 ext. 45466
E-mail: irasema@igg.unam.mx
URL:http://www.igeograf.unam.mx/sigg/investigacion/geo_fis/personal.php?cual_personal=14
Research interests: mass movement processes, vulnerability, and integrated disaster risk management

---

Prof. Jonathan French

Coastal and Estuarine Research Unit, University College London
Professor
UCL Department of Geography Pearson Building Gower Street
London WC1E 6BT

Email: j.french@ucl.ac.uk
URL:http://www.geog.ucl.ac.uk/about-the-department/people/academic-staff/jon-french
Tel: +44 (0) 20 7679 0500
Fax: +44 (0) 20 7679 0565

Prof. Beate M.W. Ratter

Institut of Geography
University Hamburg
Professor
Bundesstrasse 55
20146 Hamburg, Germany

Email address: ratter@geowiss.uni-hamburg.de
URL:http://www.geo.uni-hamburg.de/en/geographie/mitarbeiterverzeichnis/ratter.html
Tel: +49 40 42838-5225
Fax: +49 40 42838-4981

Prof. Yuichi S. Hayakawa

Center for Spatial Information Science, The University of Tokyo
Associate Professor
5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8568, JAPAN
Vox: +81-4-71364306
Research interests: fluvial geomorphology, geospatial information sciences, and geoarchaeology

E-mail: hayakawa@csis.u-tokyo.ac.jp
URL: http://www.csis.u-tokyo.ac.jp/~hayakawa/

Prof. Joy Obando

Department of Geography, Kenyatta University
Capacity Building for Integrated Watershed Management
in Eastern Africa (IWMNET), Kenya
Associate Professor, Director of Financial Aid Office
P. O. Box 43844-00100, Nairobi, Kenya
Vox: +254 722 966 134
E-mail: obando.joy@ku.ac.ke , obandojoy@yahoo.com
URL:http://www.ku.ac.ke/schools/humanities/faculty/faculty-profiles?id=227
Research interests: soil erosion, land use changes, and integrated watershed management

---

Prof. Werner Nel

Department of Geography and Environmental Science
University of Fort Hare
Associate Professor
Alice, 5700
South Africa
Telephone+27406022146/+27437047398

E-mail: WNel@ufh.ac.za
URL: -
Research interests: mountain and polar geomorphology, climate/surface process interaction, and climate change

---

Prof. Margreth Keiler

Institute of Geography, University of Bern
Associate Professor
Hallerstrasse 12, 3012 Bern, Switzerland
Telephone: +41(0)31 631 3277
E-mail: margreth.keiler@giub.unibe.ch
URL:
http://www.geography.unibe.ch/content/forschungsgruppen/angewandte_geomorphologie/gruppenportrait/margreth/index_eng.html
Research interests: mass movements, sediment flux, complex systems, human-environment interactions, natural hazards and risk

http://www.geography.unibe.ch/content/forschungsgruppen/angewandte_geomorphologie/wwwsgmg2015ch/index_eng.html

---

Prof. Herve Regnauld

Université of Rennes , France

Dpt. Geography, Rennes 2

Suite 211 A 02 99 14 18 40

E-mail: herve.regnauld@uhb.fr

Prof. Chuan Tang

State Key Laboratory of Geo-hazard Prevention and Geo-environment Protection, Chengdu University of Technology, China

Address: Cheng Du City, Si-Chuan Province, China

Zip code: 610059
Tel: (+86)028-84073193

E-mail: tangc707@gmail.com

Prof. Emmanuel Reynard

Institute of Geography and Sustainability, University of Lausanne
Bâtiment Anthropole, CH–1015 Lausanne, Switzerland

Tel +41 21 692 30 65
Mobile +41 79 331 72 44

Website: http://mesoscaphe.unil.ch/reynard/

E-mail:Emmanuel.Reynard@unil.ch

Professor Paul D. Sumner

Professor and Head of Department
Department of Geography, Geoinformatics and Meteorology
University of Pretoria
Geomorphologist (soil erosion, rock weathering, mountain environments)

Tel:+27 12 420 3536

paul.sumner@up.ac.za
www.up.ac.za

3. The Inaugural conference of IGU commission on "Geomorphology & Society"

3.1 The meeting and its general achievement

The purpose of this inaugural conference of IGU commission on "Geomorphology & Society" is to promote a platform in which geomorphologists and social scientists can interact, share studies and form the possibility of intense collaboration to provide solutions for acute human environmental problems. The interaction among geomorphologists and other social scientists are significant and crucial in today's fast changing global environment. As policy-making is facing demanding and even unknown and uncertain futures of human environments, transdisciplinary collaboration becomes dynamic and vital for a sustainable future.

This inaugural conference has worked in a transdisciplinary way and served the Commission's purpose. The knowledge of how the societies perceive their environments, how they make decision, and how they utilize the environments is a systematic science. The systematic science requires trans-disciplinary endeavors in order to deal with problems sensibly and appropriately for each individual case. That is to say, while the geomorphologic insights may be critical, societies and people at particular environment with certain given ecological issues may play even bigger roles in understanding and solving issues.

The main theme of this inaugural symposium is "Earth Surface Processes in a Dynamic Environment". Earth surface processes, climatic change and land use change are critical issues throughout the world. Regional differences give rise to a diverse array of impacts and scenarios, requiring varied approaches for effective management and solutions. This conference provided a platform for disseminating research findings of geomorphologic issues and promoted meaningful discussions among scholars of various fields to bring new lights and possible collaboration in the future. In this meetings temporal aspects are considered seriously to strengthen the understanding of historical process for geomorphologic issues. The titles of papers presented are attached in the next program page.

A pre-conference field trip to eastern Taiwan and a post-conference field trip to Matzu islets (Matzu Geopark and the National Scienic Area of Matsu islets) were parts of the conference, making this inaugural meeting a good practice of combining

geomorphology and human geography. Prof. Mike Meadows, IGU Secretary General and IGU Vice President Prof. Dietrich Soyez both joined our field trips and conference.

This conference has assembled most of its commission members to share their research results, along with many other scholars. Out of the conference and papers presented, a decision for publishing an edited volume was reached. Professor Mike Meadows took the initiative in soliciting session papers. The volume of "Geomorphology and Society" (book shown in the title page of this report) has been published by springer by mid-2016. As a result of this inaugural meeting, the book is a milestone for involving both physical and human geographers to engage in issues that deserve transdisciplinary attention.

This conference was held at the National Taiwan University, Taiwan.

Program for the Inaugural Meeting of Geomorphology and Society

16~17 September 2014
Venue: Convention Center (Shih-Liang Hall), National Taiwan University

Time	Abstract Title	Author
Chairperson：Jiun-Chuan Lin		
08:30-09:00	Registration	
09:00-09:30	Opening Ceremony	**Prof. Jiun-Chuan Lin** Department of Geography, National Taiwan University
09:30-10:20	Keynote speech 1 Geomorphology in the Anthropocene: perspectives from the past, pointers for the future?	**Prof. Mike Meadows** Secretary General, IGU
10:20-10:40	Coffee break	
10:40-11:30	Keynote speech 2 Geomorphology AND Society: A Promising Field of Boundary-Spanning Interaction and Cooperation	**Prof. Dietrich Soyez** Vice President, IGU
11:30-12:20	Keynote speech 3 A new approach to mapping the connectivity of coastal geomorphic systems	**Prof. Jonathan French** Coastal and Estuarine Research Unit, University College London
12:20-13:30	Lunch	
Chairperson：Su-Min Shen		
13:30-14:10	Physical environmental changes and	**Prof. Kenji Kashiwaya**

	some earth surface activities inferred from lake-catchment systems in East Asia	Institute of Nature and Environmental Technology, Kanazawa University, Kanazawa, Japan
14:10-14:50	Rainfall erosivity and risk assessment on Mauritius	**Prof. Nel Werner & Paul Summer** Dept of Geography and Environmental Science, University of Fort Hare, Alice, South Africa
14:50-15:10	Tea break	
Chairperson : Shew-Jiuan Su		
15:10-15:50	Evolution of a beach/barrier/marsh system under three main forcings and controls : sea level rise, storm-events and human impact.	**Prof. Herve Regnauld** University of Rennes 2, Lab Costel UMR 6554 CNRS, Rennes, France
15:50-16:30	Morphological changes of debris flow deposits in a steep headwater channel revealed by high-definition topographic measurements	**Prof. Yuichi Hayakawa** Center for Spatial Information Science, The University of Tokyo, Kashiwa, Japan
16:30-17:10	Changing Environment and Dynamics in the Central Rift Valley Lakes, Kenya	**Prof. J. A. Obando** Kenyatta University
17:10-17:50	Progress report of the IGU Commission on “Geomorphology & Society”	**Prof. Jiun-Chuan Lin** Dept of Geography, National Taiwan University

17 September 2014

Venue: Convention Center (Shih-Liang Hall), National Taiwan University

Time	Abstract Title	Author
08:30-09:00	Registration	
Session 1 –Chairpersons：Herve Regnauld , Cho-ying Huang		
09:00-09:20	Impact of reclamation and land consolidation on COD in Lake Kiba, Japan	**Seiya Nagao** Institute of Nature and Environmental Technology, Kanazawa University, Japan
09:20-09:40	Geomorphological Response to Coastal Engineering Structures: A Case Study on Detached Breakwaters in Tainan, Taiwan	**Tsung-Yi Lin** Dept of Geography, National Taiwan Normal University
09:40-10:00	Reconstructing modern hydro-environmental fluctuations inferred from lacustrine sediments in Lake Onuma, Hokkaido, Japan	**Taeko Itono** Institute of Nature and Environmental Technology, Kanazawa University, Kanazawa,Japan
10:00-10:20	Large-scale analysis of litterfall in tropical and subtropical forests of Taiwan	**Cho-ying Huang** Department of Geography, National Taiwan University
10:20-10:40	Coffee break	
Session 2 –Chairpersons：Nel Werner , Hung-Fei Lei		
10:40-11:00	Channel transformation, land management and its implication on future flood hazards, Taiwan	**Su-Min Shen** Department of Geography, National Taiwan Normal University
11:00-11:20	The Mountain Environment in Taiwan and its Governance	**Hung-Fei Lei** Chinese Culture University
11:20-11:40	Study on the Soil Organic Carbon Storage and Vertical Distribution of Several Forest Types in Typical Area of Hanjiang River Basin	**Pei-song Lin** Department of Geography, Jiaying University, Meizhou, China
11:40-12:00	The Landslides and Debris Flows in Chishan River Catchment and the Population Shift after Typhoon Morako	**Chia-Hung Jen** Department of Geography, National Kaohsiung Normal University
12:00-13:00	Lunch	
Session 3 –Chairpersons：J. A. Obando, Wen-Cheng Wang		
13:00-13:20	Political Ecology of Land Subsidence in South-western Taiwan	**Shew-Jiuan Su** Department of Geography, National Taiwan Normal

		University
13:20-13:40	Adaptation Strategies and Integrated Adaptation Platform for Climate Change in Taiwan	**Hsu-Cheng Hsu** National Development Council
13:40-14:00	Geomorphology and Society: A Tale of Two Awarded Architectures in Taiwan	**Wen-Cheng Wang** Department of Geography, National Taiwan Normal University
14:00-14:20	Social Adaptation of Geomorphologic Vulnerability	**Bor- Wen Tsai** Department of Geography, National Taiwan University
14:20-14:40	A early and middle Holocene environmental record from Zhejiang Beihuqiao (BHQ) , eastern China	**Wei Ye** Geography Process Lab, Zhejiang Normal University, Jinhua, China
14:40-15:00	Preliminary Research on Source of Quaternary Aggradation Red Earth Around Dongting Lake area, China	**Lidong Zhu** Geography process lab of Zhejiang normal university, Jinhua, China
15:00-15:20	Tea break	
Session 4 –Chairpersons：Yuichi Hayakawa , Jr-Chuan Huang		
15:20-15:40	Investigating effect of environmental controls on dynamics of CO_2 budget in a subtropical estuarial marsh wetland ecosystem	**Jehn-Yih Juang** Department of Geography, National Taiwan University
15:40-16:00	Traditional eastern Fujian style stone house preserving project in Matsu island	**Kai H Hsieh** Matsu National Scenic Area Administration
16:00-16:20	Earlier Vegetation Greenup may Reduce Dust Storms of Spring Northeast China	**Ning Li** State Key Laboratory of Earth Surface Processes and Resources Ecology, Beijing Normal University, Beijing , China
16:20-16:40	The Holocene tidal sedimentary changes in Mosan Bay Estuary, Korea	**Young Ho Shin** BK21 Plus for Geography Department (4-Zero Land Space Creation group), Seoul National University, Seoul, Korea
16:40-17:00	Beach profile change in the Baek Sa Jang beach, Korea	**Kim, Chan Woong** Department of Geography, College of Social Sciences Seoul National University,

		Seoul, Korea
17:00-17:20	Effects of land use change on discharge characteristics : A case study for the Wangsuk river basin, central Korea	**Lee Hyoun A** Department of Geography, College of Social Sciences, Seoul National University, Seoul, Korea
17:20-17:40	An Overlooked, but Profound Chain Reaction of Mass Wasting: From Rainfall to Sediment Transport in Subtropical Montane Catchments	**Jr-Chuan Huang** Department of Geography, National Taiwan University
17:40-18:00	A Classification of Mountains in the Korean Peninsula and the Northeast China based on the Mountain Ordering	**Qiu Hong JIN** Department of Geography, Seoul National University
18:00-18:10	Concluding Remarks	

Poster Session

Venue: International conference hall, Shih-Liang Hall, College of Science, N.T.U.

Time	Abstract Title	Author
16th, 17th, September, 09:00-18:00	Landslide mapping and risk evaluation by aerial photograph interpretation and field survey in central provinces of Vietnam	**Le Hong Luong and Toyohiko Miyagi** Tohoku Gakuin University, Japan
	The similarity of river evolution at the initial stage of channel erosion	**Jiun-Chuan Lin** Department of Geography, National Taiwan University, Taiwan
	Terrain set LiDAR on slope study: Mudstone slopes in Taiwan	**Yeuan Chang Cheng** Department of Geography, National Taiwan University, Taiwan
	The process of water erosion on mudstone regolith – a case study of southern Taiwan	**Ci-Jian Yang** Department of Geography, National Taiwan University, Taiwan
	Earthquake and heavy rainfall events from the core analysis at Sun-Moon Lake, central Taiwan	**Shin Chen** Department of Geography, National Taiwan University, Taiwan
	Comparison of land use change between Hsia-Men China and central Taiwan	**Ying Tong Lin** Department of Geography, National Taiwan Normal

		University, Taiwan
	Applying air pollution model on risk assessment of geological carbon dioxide storage	**Kuang Shiang Chen** Department of Geography, National Taiwan University, Taiwan
	The Effects of Agricultural Landuse and Typhoon Events on DIN/DIP Transport Behaviors in the Headwater Catchment of Taiwan, an Epitome of the Oceania	**Lee, T.Y.[1,2], Huang, J.C.[2], Kao, S.J.[3,4]** 1.Department of Geography, National Taiwan Normal University, Taiwan 2.Department of Geography, National Taiwan University, Taiwan 3.Research Center for Environmental Changes, Academia Sinica, Taiwan 4.State Key Laboratory of Marine Environmental Science, Xiamen University, Xiamen, China
	Transitional Effects of Landuse Changes and the Impacts of Urbanization on DIN Export in the Danshui River, Taiwan	**Lee, Tsung-Yu[1,2], Shih, Yu-Ting[2], Lee, Li-Chin[2], Huang, J.C.[2]** 1.Department of Geography, National Taiwan Normal University, Taiwan 2.Department of Geography, National Taiwan University, Taiwan
16th, 17th, September, 09:00-18:00	Application of Multi-Expression Programming to estimate riverine DIN export from land to ocean	**Lee, Tsung-Yu[1,3], Chen, Li[2], Lee, Li-Chin[3], Huang, J.C.[3]** 1.Department of Geography, National Taiwan Normal University, Taiwan 2.Department of Civil Engineer and Engineer Informatics, Taiwan 3.Department of Geography, National Taiwan University,

		Taiwan
	The Establishment of the Relations Between Typhoon Characteristics and Landslide Frequency-area Distribution to Apply for the Estimation of Typhoon-induced Landslide Area	**Tse-Yang Teng[1], Tsung-Yu Lee[1,2], Yi-Chin Chen[3], Yu-Ting Shih[1], Meng-Chang Lu[1], Jr-Chuan Huang[1]** 1.Department of Geography, National Taiwan University, Taiwan 2.Department of Geography, National Taiwan Normal University, Taiwan T3.aiwan Typhoon and Flood Research Institute, Taipei, Taiwan
16th, 17th, September, 09:00-18:00	Statistical Experiment and Hydrological Controls on the Characteristics of Landslide Frequency-area Distribution	**Tse-Yang Teng[1], Jr-Chuan Huang[1], Tsung-Yu Lee[1], Yi-Chin Chen[2], Cho-Ying Huang[1], Cheing-Tung Lee[1]** 1.Department of Geography, National Taiwan University, Taipei, Taiwan 2.Taiwan Typhoon and Flood Research Institute, Taipei, Taiwan
	The Role of Parameter Sensitivity in Hydrological Simulation: The Change of Sensitivity Under Difference Flood Size	**Meng-Chang, Lu[1], Jr-Chuan, Huang[1], Tse-Yang, Teng[1], Jun–Yi, Lee[1]** 1.Department of Geography, National Taiwan University, Taipei, Taiwan

3.2 Field trips, pre- and post-conference trips

15 Sept. 2014-- From East Rift Valley to Taipei

Photos from the field trips

Photo 1. Participants at the Bi-tou geopark, North-Eastern National Scenic Area, Taiwan

Photo 2. Participants at the Bi-tou geopark, North-Eastern National Scenic Area, Taiwan

4. Minutes of Commission meeting

Date: 16 September 2014

Participants:

Jiun-Chuan Lin, Taiwan; Jonathan French, UK; Yuichi S. Hayakawa, Japan; Werner Nel, South Africa; Joy Obando, Kenya; Herve Regnauld, France; Su-Min Shen, Taiwan

The first inaugural meeting was a productive event which developed major and new ideas to move Commission into the Future Earth-Coast mode. The vision was to promote awareness around the geomorphologic society as well as human and social scientists for the potential to collaborative and to promote the achievement that could be possible for trans-disciplinary endeavors.

The objectives of the meeting were:

(1) To devise a plan to join future IGU Congress and regional meeting
(2) To develop a global network to share common interests and experiences
(3) To advance and promote the ideas for geomorphology and society in each member country

(4) To initiate a proposal for each member country to consider undertaking a fundamental revision of their research agenda in which the trans-disciplinary collaborative work is emphasized and promoted

5. 2015 meetings

5.1 IGU regional conference in Moscow AUGUST 17–21, 2015

The IGU Geomorphology and Society Commission C12.41 submitted the proposal of a session during the Regional Conference of IGU, Moscow, Russia, for August 17-21, 2015 under title “Problems and consequences of land use/land cover changes”. The Organizers of IGU /GAS (Geomorphology & Society) sessions are: Prof. Jiun-Chuan Lin, National Taiwan University ; Prof. Su-Min Shen, Secretary of The commission and Prof. Shew-Juan Su, National Taiwan Normal University.

5.2 The 12th East Eurasia International Workshop: Present Earth Surface Processes and Long-term Environmental Changes in East Eurasia

September 4-8, 2015, Taipei, Taiwan

The purpose of the Workshop is to exchange modern and historical environmental information in East Asia region for clarifying present earth surface processes and long-term environmental changes in East Eurasia for sustainable Earth and establishing mutual understanding on earth environment.

This international workshop was initially held in Daejeon, Korea (2004), and was subsequently in Kanazawa, Japan (2005), Seoul, Korea (2006), Nanjing, China (2007), Hakodate, Japan (2008), Taipei, Taiwan (2009), Jeju Island, Korea (2010), Chengdu, China (2011), Kobe, Japan (2012) and Kwangju, Korea (2013). Nanjing, China (2014) and then 2015 in Taipei, Taiwan

The 12th East Eurasia International Workshop aims to provide a forum for accessing to the most up-to-date and authoritative researches from Quaternary geology, sedimentology, geography, geomorphology and environmental sciences.

Main topics:

1. Present lake-catchment processes: Observation and measurement
2. Present environmental processes and natural hazards
3. Lacustrine sediment chronology
4. Ecological response to human activity and natural variation and their interactions
5. Global changes and regional environmental change
6. Modeling and forecasting environment changes
7. General discussion and some topics for the future cooperation.

6. 2016 Meeting: IGU Joint symposium of Commissions on Island, Political Geography, and Geomorphology & Society

Date: 26-29 June, 2016

Venue: NTU Global Change Research Center, TAIWAN

6.1 Back ground and general achievements

The purpose of the joint conference of IGU Commissions on "Geomorphology & Society", "Island Study" and "Political Geography" is to promote how the nature and human research can contribute to the changing society and exchange historical and contemporary information on environmental processes.

The organisers invite researchers, academics, community and business interests, government authorities and interest groups to participate in the conference. The event offers an opportunity to present papers and posters, discuss issues and developments on a wide range of subjects, and identify common themes affecting geomorphology and society, islands, and political geography throughout the world. Regional differences give rise to a diverse array of impacts and scenarios, requiring different approaches for effective management. The conference will provide a platform for dissemination of research findings and will promote discussion of these topics.

This is also the opportunity to invite other commissions to hold the symposium and discuss from different disciplinary. To have dialogue interdisciplinary is one of the goal for this symposium. At the end of the symposium it turned out very successful and found many possibilities to work together between IGU commissions.

6.2 Program

June 26, 2016		
8:30-9:00	Registration	
9:00-9:20	**Opening Ceremony** President Huimin Bhikshu, Dharma Drum Institute of Liberal Arts Dean S.T. Liu, College of Science, National Taiwan University Professor C.Y. David Chang, Chair of Commission on Island, IGU Professor J.C. Lin, NTU, Chair of Commission on Geomorphology and society, IGU Professor Takashi Yamasaki, Chair of Commission on Political Geography, IGU	
Keynote Speeches Moderator: C.Y. David Chang		
9:20-9:50	Geography, the International Geographical Union and 'Future Earth'	Mike Meadows
9:50-10:20	Geomorphology: human geography perspectives and cooperation potentials	Dietrich Soyez

10:20-10:40	Tea Break	
Keynote Speeches Moderator: Jiun-Chuan Lin		
10:40-11:10	21st Century Geomath: 1 + 1 = 3	Stanley Brunn
11:10-11:40	Beach Combing on the Dutch Wadden Islands	Gerard Persoon
11:40-12:00	Discussion	
12:00-13:00	Lunch Break	
Sessions		
Session 1: Islands and Complexity Chair: Shew-Jiuan Su		
13:00-13:15	Tropical Island: the power of a landscape myth, from Waikiki to Pt. Venezia, Milano, and back again.	Elena dell'Agnese
13:15-13:30	Political Ecology in the Maldives: resilient (and resistant) strategies	Marcella Schmidt di Friedberg and Stefano Malatesta
13:30-13:45	Archaeology of the Epiphany: the heritagization of the white bones excavated in Ludao	Youg-Ching Lo
13:45-14:00	Reconnecting Social-Ecological Systems for Resilient Island Futures: case studies on Pongso-no-Tau (Orchid Island), Penghu, and Kinmen islands	Huei-Min Tsai
14:00-14:20	Discussion	
14:20-14:40	Tea Break	
Session 2: Nature and Human Engagement Chair: Shu-Min Shen		
14:40-14:55	Precipitation Control and the Politics of Cloud Water Governance via State-led Weather Modification: case study of authoritarian China	Shiun-Shen Chien, Dong-Li Hong and Po-Hsiung Lin
14:55-15:10	From Science to Hazard Management: two case studies in Taiwan coast	Tsung-Yi Lin
15:10-15:25	Public Participation in Stream Conservation at an Aboriginal Community in Taiwan	Chia-Ying Yao and Shyue-Cherng Liaw
15:25-15:40	Natural and Artificial Earth Surface Processes Printed in Lacustrine Sediments of East Asia	Kenji Kashiwaya
15:40-15:55	Soil Erosion Phenomena on Round Island, Mauritius	Paul Sumner
15:55-16:15	Discussion	
16:15-16:35	Tea Break	
Session 3: Hazards, Knowledge and Power Chair: Hui-Min Tsai		

16:35-16:50	Exploring the Complex Interactions between Climate and Landscape on Sub-Antarctic Marion Island: current knowledge and future impacts.	Werner Nel
16:50-17:05	Landslide and Debris Flow Hazard and Risk Mapping	Chuan Tang and Cees van Westen
17:05-17:20	Archaeological Sites and Natural Hazards in Kayseri (Turkey)	Yuichi S. Hayakawa
17:20-17:35	Between a Sea Power and Land Powers: the revival of environmental determinism in Japan's security policy	Takashi Yamasaki
17:35-17:50	Geopark as a Tool for Promoting Participatory Landscape Conservation, Geo-education and Geo-tourism	Jiun-Chuan Lin, Shew-Jiuan Su and Wen-Cheng Wang
17:50-18:05	Discussion	

Field Trip to Matsu Islets

June 27-29, 2016

June 27, 2016 (Monday)		
8:30-	Assembling at Taipei Songshan airport	
9:10-10:00	Songshan airport to Nangan airport (Matsu)	
10:00-11:00	Arriving at Fuao habor	
11:00-12:00	Boat trip from Nangan to Dongju	
12:00-13:00	Lunch	
13:00-14:50	Visiting Dongju village, Stronghold # 66, and Fish ball DIY	
Invited Speeches		
14:50-15:40	**~ Matsu Geopark International Lecture Series ~** Tourism and remarkable coastal landscapes in France : a geomorphological approach	Herve Regnauld
15:40-16:10	Africa in the Antarctic: A journey in science and culture	Nel Werner
16:10-16:40	Drakensburg to Desert: scenes from the Southern African landscape	Paul Summer
16:40-17:00	**Q & A Discussion**	
17:00-19:00	Fuzheng beach, Dongju lighthouse (National Historic Relic)	
19:00-20:00	Dinner	Hometown Hostel
20:00-21:00	Walk tour for observing Blue Tears	
21:00 -	Hometown Hostel	
June 28, 2016 (Tuesday)		
07:00-07:50	Breakfast	Hometown Hostel
8:00-09:10	Boat trip to Nangan	
9:10-9:50	Visiting Tunnel 88	

9:50-10:40	Niujiao Village and Stronghold #12	
10:40-11:50	Matsu Folklore and Artifact Exhibit Hall	
11:50-12:30	Visit with Matsu National Scenic Area Administration	
12:30-13:30	Lunch	
13:30-14:30	Visiting Beihai Tunnel or Dahan Stronghold	
14:30-15:00	Iron Fort, Ren'ai village	
15:00-15:30	Jinsha village	
15:30-16:40	Queen of Heaven Temple and Matsu Statue	
16:40-18:10	Dinner	
18:10-18:30	Transport to Nangan Visitor Center	
Invited Speeches		
18:30-19:20	**~ Matsu Geopark International Lecture Series ~** **Uncomfortable Landscapes of our Industrial Past: Transnationality, Trauma and Reconciliation (Examples from German, France and Japan)**	Dieter Soyez
19:20-20:10	**~ Matsu Geopark International Lecture Series ~** **The Changing Futures of Islands in the Netherlands and the miracle of Urk**	Gerard Persoon
20:10-20:30	**Q & A Discussion**	
20:30-21:00	Beihai Tunnel at night: blue tears	
21:00 -	Jiou-wu Hostel	
June 29, 2016 (Wednesday)		
7:00-8:30	Breakfast	




IGU Commission on Islands

IGU Commission on Political Geography

PROGRAMME

Taipei and Matsu, Taiwan

June 25-30, 2016

Organized and Hosted by

Department of Geography, National Taiwan University

Global Change Research Center, National Taiwan University

Dharma Drum Institute of Liberal Arts

Future Earth Coasts

Northern Environmental Education Regional Center, Taiwan

Department of Geography, National Taiwan Normal University

Graduate Institute of Environmental Education, National Taiwan Normal University

Geographical Society of China Located in Taipei (Taiwan)

Matsu National Scenic Area Administration, Tourism Bureau, Taiwan

中華民國科技部
Ministry of Science and Technology, R.O.C.

Abstracts

Keynote 1

Geography, the International Geographical Union and 'Future Earth'

Mike Meadows, University of Cape Town (Email: michael.meadows@uct.ac.za)

Geography straddles the social and natural sciences and, as such occupies a virtually unique position as a discipline to explore (and help resolve) the set of 'wicked' problems that characterise the increasingly challenging relationship between humanity and the global environment. This is recognised at the highest level through the adoption of the Sustainable Development. The International Council for Science (ICSU) and the International Social Sciences Council (ISSC) have jointly launched, along with several other key partners, the 'Future Earth' initiative, central to which is the concept of a dynamic but sustainable earth system that will enable future human development. Geographers, given their training and skills sets that span the social and natural sciences as well as their abilities in 'joined-up thinking', are well positioned to make a significant contribution to the research and outreach activities that constitute the Future Earth programme. In this paper, I reflect on the eight key Future Earth challenges confronting the planet and consider the role that Geographers can play in understanding the diverse interdisciplinary issues that these entail. Many of the International Geographical Union (IGU) Commissions conduct research that interfaces well with Future Earth and, coupled with activities associated with the IGU's International Year of Global Understanding (IYGU), offer excellent opportunities for our engagement.

Keynote 2

Geomorphology: Human Geography Perspectives and Cooperation Potentials

Dieter Soyez, Universität zu Köln (Email: d.soyez@uni-koeln.de)

The relationship (or lack thereof) between physical and human geography is the focus of a long-standing discussion in our discipline. The increasingly differentiated conceptualizations of global change challenges, however, now being re-evaluated in the context of the Anthropocene, have recently led to promising new perspectives on the co-production of socio-natural systems.

Against this backdrop, the starting point of the paper is the conviction that a research endeavour entitled 'Geomorphology and Society' would also benefit greatly by the inclusion of the reversed approach: 'Society and Geomorphology'.

Such a complementary perspective allows us to reassess society-related concepts as seen from three different vantage points:

- an explicitly geomorphological perspective, as adopted in classical anthropogenic geomorphology as well as in neogeomorphology, sociogeomorphology or recent discussions on 'Critical Physical Geography' / CPG (or, embedded in geology: 'Source-to-Sink' / S2S concepts)
- an explicitly hybrid perspective, as recently developed in 'Coupled Human and Natural Systems' / CHANS approaches
- an explicitly human geographical perspective, adopting consistently what could be called a 'geomorphological turn'

Based on current discussions and findings as to the (mis-)use of aggregate resources, the opportunities and disadvantages of these approaches will be assessed with the help of illustrative issues in the fields of political, resource and tourism geographies. The aim of this kind of reasoning is to show the value of conceptualizing typical geomorphological issues in inter- and transdisciplinary ways that respond to current objectives of the international *Future Earth* program, thus opening up perspectives and potential opportunities for significantly greater geographical contributions.

Keynote 3

21st Century Geomath: 1 + 1 = 3

Stanley D. Brunn, Professor Emeritus, Department of Geography, University of Kentucky, USA (Email: brunn@uky.edu)

The scholarly world often conveniently and comfortably develops specific subject matter categories for studying the earth's environments and inhabitants. While this view is popular and familiar, it is not a useful perspective to examine pressing human or environmental problems on the planet. Global warming is considered the task of earth scientists and geopolitics the focus of political geographers, political scientists and public policy professionals. This paper examines the emerging and important intersections in these two scientific fields and presents a case for political and environmental geographers, among others, to pursue research in these overlapping areas. Examples where geopolitics and global warming intersect are in discussions of poleward movement of crop and livestock zones, emerging desertification in the subtropics and ice disappearance in circumpolar areas, rising coastlines and small island economies at risk, increased megadisasters and mitigation efforts, changing energy production and consumption patterns, and disappearance and contested biodiversity zones. Mapping these impacted and threatened areas reveal the global dimensions of both the problems as well as implementing reasonable short and long term solutions. Renewed thinking and modeling is called for in exploring these intersecting scientific and policy agendas. International governing and scientific bodies in the Global North and South need to prioritize the importance of exploring emerging environmental and policy grounds for the many areas, cities and regions that are and will be at risk.

Keynote 4

Beach Combing on the Dutch Wadden Islands

Persoon, Gerard A. and Minter, Tessa
Institute Cultural Anthropology and Development Sociology, Leiden University, the Netherlands

Beach combing has been a well-established tradition for coastal communities along the sandy beaches of the Netherlands and in particular for the communities on the Wadden Islands. With the prevailing western winds and the dominant current of the North Sea all kinds of useful products are washed ashore. These products originate from ships carrying various types of cargo but in addition driftwood and discarded waste from distant places can also be found at the flood line. Marine animals, dead or wounded, often get stranded at some point. In the course of history numerous ships stranded on the sand banks and shallows waters during the heavy storms. These wrecked ships often became targets of plundering.

While inhabitants of the Wadden Islands consider beach combing as their native and historical right, and as part of their identity as islander, legally everything that is washed ashore should be handed over to the mayor of the island who has the duty to return the objects to the rightful owner. A national law on beach combing dating back to 1931 is still valid. So in legal terms 'beach combing' (and keeping the found objects as private property) is against the law, it is considered 'stealing'. These different perspectives on sea combing continue to be a source of serious tension on the islands between islanders and government officials.

In this paper we shall present the cultural history of beach combing on the Dutch Wadden Islands and the results of recent fieldwork with groups of students about the conflicting perspectives on the practice of beach combing, while focusing on some controversial cases of 'lost and found property'.

Session 1-1

Tropical Island: the power of a landscape myth, from Waikiki to Pt. Venezia, Milano, and back again

Elena dell'Agnese
Dept. of Sociology and Social Research, Marine Research and High Education (MARHE) Center, University of Milano-Bicocca, Italy (Email: elena.dellagnese@unimib.it)

Landscape has the "witty" characteristic of being, at the same time, "the thing" and "the representation of the thing" (Farinelli 1991). Thanks to its double nature, the notion is helpful in understanding the connection between representations and physical spaces, and to explain how not only the seconds are reflected in the firsts, but also how, vice versa, certain visual icons may change physical spaces, in order to be reflected in them. In this perspective, the "tropical island" myth works as a good example. Indeed, alongside the development of island tourism destinations such as Waikiki, the "tropical island" canon has become in Western culture the paradigmatic signifier of perfect holidays backdrop. From the standardization of every other "island tourism paradise" to the canon, to the imposition of its set of signs (the palm, the white sand, the blue water, the straw umbrellas) to tourism destinations very far from the sea and the tropics (such as the Mandalay Resort, in Las Vegas), the "tropical island canon" has demonstrated to be so powerful to be reproduced also in urban contexts. In Pt. Venezia, Milan, for instance, a popular kiosk called "Tropical Island", decorated with fake palms and straw umbrellas, attracts every summer large numbers of clients, reinforcing at the same time, the myth and the attractive strength of island as a tourism destination. The creation of the "Palm Islands", in front of Dubai, demonstrates how the power of a landscape myth may change not only the branding of a destination, but also its geomorphology.

Session 1-2

Political Ecology in the Maldives: resilient (and resistant) strategies

Marcella Schmidt di Friedberg and Malatesta, Stefano
Department of Educational Human Sciences "Riccardo Massa", Marine Research and High Education (MARHE) Center, University of Milano-Bicocca, Italy (Email: marcella.schmidt@unimib.it; stefano.malatesta@unimib.it)

"The concept of resilience encourages us to ask a different set of questions about the way we manage our resources-and therefore ourselves" (Walker, Salt, 2012). The Republic of the Maldives, during the last decades has, been facing a radical change, affecting socio-environmental adjustments, knowledge and practices. Food production is one of the emerging environmental challenges for peripheral atolls, each island must work as a self-sufficient system, in term of energy production, waste management and small-scale agriculture. In the Maldivian political system, as well, self-sufficiency of local islands can be read as a resistant strategy, opposing to the centralization of demographic, productive and social policies, promoted by the Government. In our contribution, we present the case of Island Organics Maldives Pvt. Ltd, which pioneered the first Maldivian organic farm on the island of Maarikilu, Baa Atoll. Shahida Zubair, founder of the company, based the project on few set of principles, aiming to integrate political, social and ecological needs: improving permaculture; recovering indigenous farming knowledge and experience; selecting species which are suitable to regional monsoon regime; promoting capacity development and awareness; empowering gender involvement in local economies; building network and relationships among surrounding islands. The ground-breaking work of Island Organics elicits the discussion on the actions local communities can improve to be resilient, and deal with a complex set of supra-local ecological and political changes. Furthermore, it helps us to understand how ecological measures, locally adopted, represent resistant strategies, acting on the social and political relationship between centre and peripheries.

Session 1-3

Archaeology of the Epiphany: the heritagization of the white bones excavated in Green Island, Taiwan

Yung Ching Lo
Institute of Taiwan Studies, Area of Indigenous Pedagogy, Chang Jung Christian University, Taiwan (PhD of Cultural Anthropology and Development Sociology, Leiden University, the Netherlands) (Email: Loyungching@mail.cjcu.edu.tw)

The paper discusses how the ‘bones’ excavated become ‘”objects” in Green Island. There are three contexts to objectivized these bones: archaeological, folk-religion and cultural anthropology to see how these bones finally became “heritage” in a multi-ethnic context. The author brings the perspective of epiphany to see how these bones become subjects to control the way they became objects of heritage.

Keywords: Green Island archaeology heritage

Session 1-4

Reconnecting Social-Ecological Systems for Resilient Island Futures: Case studies on Pongso-no-Tau (Orchid Island), Penghu, and Kinmen Islands

Huei-Min Tsai, Graduate Institute of Environmental Education, National Taiwan Normal University, Taipei, Taiwan (Email: hm5tsai@gmail.com)

The concept of resilience is increasingly used in the analysis of human-environment interactions and can furthermore be applied within a social context as the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change. Although small islands have been identified as exceptionally vulnerable to climate change and external disturbances, island resilience has become crucial for sustainable island development. This paper contributes to this emerging field of research by focusing on how island social-ecological systems (SES) play into the dynamic relationships between nature and societal resilience. The paper draws upon empirical case studies from three island groups: Pongso-no-Tau, Penghu, and Kinmen.

These offshore small islands of Taiwan have undergone major changes over the past five decades, not only due to impacts from climate change and being at the frontline of natural hazards but also due to externally driven modernization projects. A multi-tiered approach for SES analysis (Ostrom and Cox 2010) serves as a framework for institutional analysis, including aspects such as resource system, resource units, governance system, and actors. For each of the island groups, the paper presents: 1) how the local social system has developed management practices based on ecological knowledge for dealing with ecosystem dynamics and land-ocean interactions, 2) the social mechanisms behind these management practices, and 3) how land-ocean interactions influence island communities. Furthermore, in order to reconnect to the SES of today, the researchers also work with local communities to co-produce knowledge based on local experience and global challenges as well as to co-design and co-deliver the pathways to resilient island futures.

Session 2-1

Precipitation Control and the Politics of Cloud Water Governance Via State-Led Weather Modification - Case Study of Authoritarian China

Shiun-Shen Chien*, Dong-Li Hong* and Po-Hsiung Lin**
***Department of Geography, National Taiwan University (NTU), ****Department of Atmospheric Sciences, NTU, Taiwan**

Surface water and cloud water differ in terms of materiality, necessitating a clear appreciation of appropriate governance mechanisms and management practices. While current hydro-social research literature focuses primarily on surface water, a better understanding is still needed from the perspectives of political economy and political ecology as to how, through whom and under what circumstances cloud water can be transformed and utilized by weather modification. Weather modification operations are the intentional alteration of weather and cloud water conditions using technologies such as cloud seeding. This paper attempts to address this gap in the literature through a weather modification case study based in China. Post-socialist authoritarian China is the world's leading user of state power to conduct weather modification through the artificial production of rainfall. We argue that weather modification needs to be understood as part of ecological modernization, in which the state believes that precipitation can be controlled through the use of advanced technologies, thus transforming cloud water into a kind of mobile resource subject to competition between social agents at different scales. In the case of China, state-led weather modifications cover diverse purposes, including agriculture production, water security, ecological preservation, and large-scale entertainment/sporting events. We discuss three political dimensions in weather modification behind precipitation control and utilization of cloud water: ideological politics, scale politics, and re-distributional politics.

Session 2-2

From Science to Hazard Management: two case studies in Taiwan coast

Tsung-Yi Lin, Department of Geography, National Taiwan Normal University, Taiwan (Email: aeolin006@gmail.com)

The world's coastal zones are facing threats brought by global climate change. Rising sea level and a higher frequency of typhoon events in Taiwan are direct effects that can be observed. In response to coastal erosion, man-made structures, such as dikes, groins, and detached breakwaters are usually used in Taiwan to protect the shoreline. However, the protective measures are shown to be insufficient in combatting the strong waves and storm surges. Even worse, the concrete structures often leave negative effects on beach preservation. Beaches next to the structures disappear soon after the construction of these structures is completed. We discuss two case studies—one is on the morphodynamics and evolution of the barrier islands in southwestern Taiwan, and the other is on human interference on the barrier systems and subsequent shoreline developments. Applying our findings, we propose an environment-friendly and cost-effective approach for future coastal hazard management. We recommend a free-moving shoreline approach that combines reinforcement or reconstruction of sand dunes with properly-planned setback zones that limit the developments or investments in hazard-prone areas along the shoreline of the mainland side.

Session 2-3

Public Participation in Stream Conservation at an Aboriginal Community in Taiwan

Chia-Ying Yao and Shyue-Cherng Liaw, Department of Geography, National Taiwan Normal University, Taiwan

The purpose of this research is to study the participation of aboriginal people in the environmental governance for stream conservation of Jiuliao River Watershed in Taiwan. We try to understand the effects of governmental policies on indigenous community conservation and eco-tourism development. Moreover, we also investigate public perception toward this watershed management. The Lunpi community is selected as study area, and local residents mostly belong to the indigenous Atayal tribe. We conduct in-depth interviews to 27 local aboriginal people. The Institutional Analysis and Development Framework (IAD) is applied to analyze the natural resources governance and to assess the outcomes of stream conservation in the Jiuliao River watershed. In addition, we apply questionnaire survey (n=142) to understand local respondents' perception toward environmental governance in the study area. Results show that there are three process stages of environmental governance in study area including: (1) the early stage that local residents have obligation for collective action in stream conservation; (2) the middle stage that outside resources improve the collective action; and (3) the late stage that local residents and central government co-manage this watershed for stream conservation and eco-tourism development. Besides, based on the analysis of questionnaire survey, respondents mostly satisfy the outcomes of environmental governance in study area, including maintenance, management, and participation dimensions. Applying the factor analysis, the respondents' cognition and attitudes are summarized into environmental conservation, eco-tourism development, and socioeconomic and cultural factors.

Session 2-4

Natural and artificial earth surface processes printed in lacustrine Sediments of East Asia

Kenji Kashiwaya, Institute of Nature and Environmental Technology, Kanazawa University, Kakuma, Kanazawa 920-1192, Japan (Email: kashiwaya@staff.kanazawa-u.ac.jp)

Earth surface processes related to natural activities (earthquakes, heavy rainfall, etc.) as well as artificial activities (land reclamation, etc.) in lake-catchment systems have been printed in lacustrine sediments. Lake-catchment systems are often considered to be proxy observatories, which monitor present earth-surface processes and environmental changes in the systems. The observatories are also available for past monitoring with some information given by lacustrine sediments. It is of significance to reconstruct past earth surface processes and environmental changes with the information for future consideration. Moreover, quantitative reconstruction is more significant for discussions of near future prediction. Sediment information generally includes not only pre-instrumental observation period but instrumental observation period, which means that proxy data in the pre-instrumental observation period can be checked with data in the instrumental observation period. In this presentation, natural activities (earthquake and heavy rainfall) related to hazards and anthropogenic activities in East Asia will be picked up, and information on the activities printed in lacustrine sediments will be discussed.

Session 2-5

Soil Erosion Phenomena on Round Island, Mauritius

Paul Sumner, Department of Geography, Geoinformatics and Meteorology, University of Pretoria (Email: Paul.Sumner@up.ac.za)

Mauritius (20 10'S; 57 30'E) lies in the Indian Ocean and forms part of the Mascarene Islands. The erosive effect of rainfall has been documented and modelled into erosion risk maps for the island. Here, the erosion forms on an offshore volcanic islet, Round Island, are presented. Round Island measures 219ha, reaches an altitude of 280m and is characterised by steep slopes of volcanic tuff. Declared a Nature Reserve in 1957, a successful ecology rehabilitation programme has followed the removal of previously-introduced grazing animals. Erosion is widespread and in part attributed to former human influences. Soils are thin and discontinuous but gullying into the tuff bedrock is extensive. These unusual bedrock-incision forms are described and contrasted with existing classifications. Although human activity has impacted on the island in the past, several bedrock-incised gullies extend below sea level indicating a pre-Holocene origin. Small conservation structures, in the form of stone bunds, are effective in trapping sediment and establishing vegetation but are very localised. Monitoring of sediment movement by both wash and wind is ongoing.

Session 3-1

Exploring the complex interactions between climate and landscape on sub-Antarctic Marion Island: Current knowledge and future impacts

Werner Nel, Department of Geography and Environmental Science, University of Fort Hare, Alice, South Africa (Email: WNel@ufh.ac.za)

Marion Island in the Indian Ocean sector of the Sub-Antarctic has a hyper-maritime climate and an environment where diurnal scale geomorphological processes and dynamics dominate the landscape. In the Sub-Antarctic Island environments, the impact of climate change on the landscape occur at a higher resolution than for seasonal and permafrost environments and needs investigation at the diurnal time scale. Results from automated and manual surface and sub-surface measurements in a variety of habitats show that the landscape on Marion Island is dominated by the passage of synoptic scale weather systems. These systems influence the thermal characteristics of soil, intensity of rainfall, snowfall, soil frost dynamics, needle ice development, aeolian erosion and a host of other geomorphological processes and its direct and indirect interactions with the ecosystem. This paper reviews the current knowledge on the interaction between synoptic weather systems and the landscape and specifically addresses the possible landscape responses in the sub-Antarctic islands under a future climate.

Session 3-2

Landslide and debris flow risk mapping

Chuan Tang* and Cees van Westen, *State Key Laboratory of Geo-Hazard Prevention and Geo-Environment Protection, Chengdu University of Technology, China (Email: tangc@cdut.edu.cn); **Faculty of Geo-Information Science and Earth Observation, University of Twente, The Netherlands Email: c.j.vanwesten@utwente.nl)**

Landslides and debris flows in mountainous areas are the most dangerous geomorphological events, primarily because of the substantial volumes of material that can be deposited on urbanized alluvial fans. As a consequence of climate change and increase in exposure in many parts of China, the risk associated with landslides and debris flows is growing. In recent years, many serious incidents related to landslide and debris flows have been reported in China. Several landslides and debris flows that occurred in China were truly catastrophic.

In areas with high demographic density, protection works often cannot be built because of economic or environmental constraints, and is it not always possible to evacuate people because of societal reasons. Landslides and debris flow risk assessment is progressively becoming a requirement for the administrations in charge of debris flow risk management, because the risk assessment and mapping is one of the most effective soft measures in natural hazard prevention, and the base of hazard risk management, which can be contribute to the construction planning and prevention measure making. Landslide and debris flow risk mapping is still in its developing stage, and China does not have a standardized risk assessment procedure. Some case studies show that the successful implementation for regional landslide and debris flow risk assessment. However, there are even no studies for quantitative risk assessment for landslides and debris flows in China.

This paper and atlas focuses on the hazard and risk assessment and mapping methods developed recently for characterizing the danger caused by the landslides and debris flows in the Wenchuan earthquake area, China, mainly defined as follows:

(1) Recent catastrophic landslides and debris flow hazards in China: an overview, aims to present the framework of landslides and debris flow problems in China, socio-economic impact, major events, regions with major disaster problems.

(2) Landslides and debris flow inventory mapping, aims to present the state of the art in the development of debris flow inventories.

(3) Regional scale landslide and debris flow risk assessment, aims to present the input data requirements and the methods that are used on regional scales to derive landslide and debris flow risk maps.

(4) Methods for local scale and site-specific risk assessment, shows the application of physically based models for debris flow hazard and risk assessment and mapping.

The proposed methodology is composed of four main parts including data collection, hazard assessment (susceptibility assessment, analysis of triggers) consequence analysis and risk mapping. In this study, the methodology on landslide and debris flow risk assessment for regional, local, and site-specific scales in practice are explained by the example of the case study of the region of Wenchuan, southwestern China. A special consideration was given to presents the dynamic run-out modelling focusing on continuum depth-average models and includes a quantitative risk assessment using run-out models in a specific study sites. Through the case study, we aimed at the follows:

• Mapping scale: regional, local, site-specific;
• Source of input data: empirical to remote sensing;
• Run-out modeling ;
• Application of vulnerability curves;
• Generation of risk map based on economic losses.

The paper proposes a methodology for landslide and debris flow risk mapping for regional-scale analysis. The developed landslide and debris flow risk mapping methodology is tested in Wenchuan area, in China. Geographic information systems and remote sensing techniques are used to create landslide and debris flow factor maps, to obtain hazard maps, elements at risk, and risk maps. Debris flow scenarios were built basing on different return periods of rainfall. Hazard maps are obtained by using a logistic regression model. The vulnerabilities are assessed by adopting some generalization approaches. Regional landslide and debris flow risk maps were produced on a continuous scale where numerical values indicate the distribution of risk including the probability of expected losses.

Session 3-3

Archaeological sites and natural hazards in Kayseri (Turkey)

Yuichi S. Hayakawa, Obanawa, H, Yoshida, H, Naruhashi, R, Okumura, K, Zaiki, M, Kontani, R

Because the frequency of extreme events of severe natural hazards is low, their historic records often lack in ancient periods within a time scale of thousands of years. Here we explore the geomorphological and geological records in Kayseri region, central Anatolia where many archaeological settlements, mainly of Early Bronze to Roman periods, are found under potentially hazardous environment. The first step of our approach was to obtain detailed topographic and land surficial data using recent technologies of high-definition topographic measurements including laser range measurement, global navigation satellite system and structure-from-motion multi-view stereo photogrammetry. We also carried out on-site geological and sedimentological surveys. It was found that there are several potential risks of natural hazards in the area with regard to flooding in basins, sector collapse of volcanic mountain body, and earthquakes by normal or lateral fault displacements continued from the late Quaternary period. These facts learned from the past can be the lesson for the hazard risk assessment in the modern city.

Session 3-4

Between a Sea Power and Land Powers: the revival of environmental determinism in Japan's security policy

Takashi Yamazaki, Osaka City University, Japan (Email: yamataka@lit.osaka-cu.ac.jp)

Japan's security policy has been long dependent on the presence of U.S. military forces in the Western Pacific. Defense of Japan (DOJ) --- an annual white report on Japan's security policy published since 1970 --- has attempted to "logically" explain why Japan needs to be so. The comparison of descriptions in DOJ shows significant shifts in the logic of justification. Such shifts have basically been a response to those in the geopolitical context surrounding Japan. Although the logic has varied over time, classical geopolitical reasoning has remained since the mid-1980s. The logic at that time emphasized the geopolitical location of Japan between a sea power (the U.S.) and a threatening land power (the U.S.S.R) and justified U.S. military presence in Japan due to the remoteness of the U.S. beyond the Pacific Ocean. Although the vision of "Japan between two great powers" lasted until the mid-2000s, DOJ began to describe Japan as a sea power (i.e. maritime state) itself to cope with new military missions in the post-Cold War era. Accordingly the logic of justification has changed to a more equal military partnership with the U.S. and began to resituate Japan in surrounding seas where Japan has vital interests in maritime resources. Based on these analyses, this paper demonstrates how environmental determinism has been incorporated into the justification of Japan's military policies.

Session 3-5

Geopark as a Tool for Promoting Participatory Landscape Conservation, Geo-education and Geo-tourism

Jiun-Chuan Lin*, Shew-Jiuan Su and Wen-Cheng Wang*****

* jclin@ntu.edu.tw, Department of Geography, National Taiwan University

** shewsu@ntnu.edu.tw, Department of Geography, National Taiwan Normal University

*** wwang@ntnu.edu.tw, Department of Geography, National Taiwan Normal University

Global change and sustainable development are two terms often used in contextually reinforcing way without discriminating deliberation. If one takes the two terms and examine them prudently, one may consider global change a term of planetary scale, and sustainable development a term for describing the process/status/goal of human society at various scales and of countless aspects such as economy, society and environment. How the two terms of so much difference, should be dealt with simultaneously? Or why are they important to be faced bilaterally? For the sake of human environment, the two terms are full of action connotation and the actions need to be conducted from various causes of all scales. Among scales, that of bottom up level gives the terms meaningful foundation.

Thus, this paper will use Taiwan's implementation of UNESCO Geopark as a case to illustrate that bottom-up participation is significant in a fast changing environment. National or regional policy/policy framework is usually knowledge- based political agenda and sometimes rhetoric; bottom-up participation, however, could be powerhouse that truly make a change, even if meager. With omnipresent bottom up actions across the world, a sustained global environment may be better maintained. This paper analyzes how the core values of geopark is used and conducted in various community of Taiwan to try to make an impact. Through geopark promotion and implementation, geo-education and geo-tourism become cores in which "knowledge is power" is manifest and environment conservation becomes possible and robust.

Keywords: geo-conservation, environmental education, geo-tourism, sutainble development and Geopark

Lecture 1

Tourism and remarkable coastal landscapes in France : a geomorphological approach

Herve Regnauld

In France many coastal sites are considered as remarkable : they attract many tourists and play a significant role in the local economy. These sites are « remarkable » because they have been slowly considered as such. During the 18th century french coastlines were not seen as interesting places. During the 19th as tourism began to exist and as railway companies were eager to develop, many tourist sites were « invented ». It suddenly became important to visit the Fontainebleau Forest or the Normandy cliffs. Many painters were asked to « describe » the coastal sites were tourists should go for the price of a train ticket. Though, other painters decided to « paint » these coastal landscapes but not in a mimetical way. Their works were not aimed at imitating photographs but at depicting something which belongs to the coast and produces some sort of an aesthetical idea. Novelists did contribute also to make some places well known. Some film makers, as early as the thirties did present parts of the coastline and helped to make them famous. Later, in the 60ies the ecological issue began to appear and the first national park in France was a coastal site (island of Port Cros, 1960). At the begining of the XXI century the concept of geomorphosite was used to consider a new aspect of the coastal landscapes.

Today, within this historical and cultural contexte, several issues are to be coped with. Remarkable sites are over frequented and they need to be managed in a way that preserves them. The main problem is that there is no reference that would determine what is the « proper », the « best », the « natural », the « most beautifull » behaviour of the site. In some places coastal retreat is considered as a threat (Etretat) whereas in other sites retreat is seen as a natural behaviour (Talbert). In baie du Mont Saint Michel sedimentation is fought against but in Anse de l'Aber it is seen as an ecological benefit. This communication will adress these various situations and will try to consider how morpho dynamic evolution may be interfingering with aesthetical issues along the french coastlines.

Lecture 2

Africa in the Antarctic: A journey in science and culture

Werner Nel , Department of Geography and Environmental Science, University of Fort Hare, Alice, South Africa.

Used as a gateway to the world's southernmost continent since the 18th century, South Africa has been actively involved in scientific research in Antarctica since the annexation of the sub-Antarctic Prince Edward Islands in the late 1940's. The International Geophysical Year (1957 to 1958) was also the catalyst for South Africa's permanent involvement in the occupation of continental Antarctica and the country being one of the first signatories to the Antarctic Treaty. The only country from Africa. The main focus of South Africa's involvement in the Antarctic Treaty Zone has always been research and it is a founder member of the Scientific Committee on Antarctic Research (SCAR). South African researchers have participated in both national and international Antarctic expeditions for more than 60 years and this participation in Antarctic research has reflected the changing dynamics of South African society. This presentation illustrates the history of South Africa's involvement and research activities in the Antarctic and reflects on how South Africans in Antarctica mirrors the culture and changing complexities of its society.

Lecture 3

Drakensburg to Desert: scenes from the Southern African landscape

Paul Summer, Department of Geography, Geoinformatics and Meteorology University of Pretoria, South Africa

The southern African landscape has a long geomorphological history superimposed on some of the oldest geological formations on Earth. The subcontinent is now tectonically passive but is elevated in the east where mountains dominate the sub-continental margin. In the absence of continental glaciation post the breakup of Gondwana, the land surface has preserved many relict landforms while active erosion processes continue to sculpture the landscape. The Drakensberg mountains provide for a drainage divide in the east and a marginal periglacial environment near its summit areas above 3000m. To the east, drainage extends 100km towards a sub-tropical coast at the Indian Ocean and towards the west, drainage continues for over 2000km towards the Namib Desert on the Atlantic coast. Contained within these mountain and desert environments are remnants of rock art, painted by the San. An overview of the diverse landscapes, both active and relict, on an east-west transect is presented and efforts towards understanding the geomorphological deterioration of the valuable rock-art cultural heritage contained within are described.

Lecture 4

Uncomfortable Landscapes of our Industrial Past: Transnationality, Trauma and Reconciliation (Examples from Germany, France and Japan)

Dieter Soyez

The majority of industrial heritage sites worldwide, and iron and steel production/processing in particular, can be regarded as ‘sanitised’ for two main reasons:

First, they are markedly ‘national’ in terms of the politics of their designation, their social legitimacy and normal practices of their interpretation. In this sense, ‘national’ claims are privileged over the actual ’messiness’ of the industrial process which cuts across international boundaries and is decidedly transnational in character, marked by migrations and movements of people (including invading armies), ideas, inventions, capital and pollution.

Second, industrial heritage sites almost exclusively celebrate the brighter aspects of industrialisation by, for instance, focusing on inventive engineers, far-sighted entrepreneurs and creative architects, assumed, for the most part, to working in times of peace, prosperity and progress. Industrial sites and landscapes marked by technological failure, active in times of war or annexation, and overseen by greedy industrialists, power-hungry politicians or fame-thirsty generals, are less common to our narratives of industrial heritage.

In this lecture I address transnationality and trauma as being constitutive – and often linked – facets of our industrial heritage. I seek to complement current narratives and the dominant tropes of our industrial past by making visible the concealed and troubled realities of industrial heritage. I draw upon examples from the industrial landscapes and major manufacturing facilities in Germany, Japan and France, all of them involved, in periods of war and annexation, in weapons production and forced labor. In my conclusions, I offer reflections on the contemporary politics of (industrial) heritage within the conceptual frameworks of contested heritage, heritage dissonance and dark tourism, as well as offering possible ways of dealing with the realities of transnationality and the truths of trauma.

Lecture 5

The Changing Futures of Islands in the Netherlands and the miracle of Urk

Gerard Persoon, Institute Cultural Anthropology and Development Sociology, Leiden University, the Netherlands

In the past three groups of islands could be distinguished in the Netherlands. In the north of the country there are the Wadden Islands, a group of five inhabited islands that form part of the chain of islands that runs along the coastline of the Netherlands, Germany and Denmark. The area is recognised as an international UNESCO World Heritage Site (2009). The second group of islands was formed by five islands in the former inner sea, called the Zuyderzee. Finally there was a group of islands formed in the delta´s of the main rivers running through the Netherlands and Belgium (Rhine, Maas and Schelde). Usually these islands were collectively called the Zuidhollandse and Zeeuwse Islands. As a result of the need for more agricultural land but also in an effort to mitigate the impact of natural disasters many islands have been connected by dikes and dams. Other islands have been completely incorporated into large polders and are no longer surrounded by water but by land.

In this presentation an overview will be given about the changing futures of the islands in the Netherlands as a result of major infrastructural activities that have dominated landscape engineering in the country since the late 19th and 20th century. One island is of particular interest in this respect, and that is the former island of Urk. As one of the former Zuyderzee Islands it performed a crucial function for the harbour of Amsterdam, which at that time did not have a direct connection to the North Sea. For that reason Urk was bought by the city of Amsterdam. However as a result of the construction of the Barrier Dam (1932), the Zuyderzee was cut off from the North Sea and the inner sea became a fresh water lake. The 32 km dyke shortened the coastline by some 200 km. Urk was incorporated in a large new agricultural polder and the former fishermen were supposed to become farmers. However this did not happen. On the contrary: though cut off from the sea, at present Urk still has the largest fishing fleet in the country and one of the largest fish auctions in Europe. Moreover the community has retained very much its island identity and specific cultural characteristics. This is what people like to refer to as ´the miracle of Urk´.

5. Local Organizers and Contacts

Dr. Jiun-Chuan Lin, National Taiwan University, Taiwan;
Email: jclin@ntu.edu.tw
Dr. C. Y. David Chang, Dharma Drum Institute of Liberal Arts, Taiwan;
Email: cydavidchang@gmail.com
Dr. Shew-Jiuan B. Su, National Taiwan Normal University, Taiwan;
Email: shewsu@ntnu.edu.tw
Dr. Huei-Min Tsai, National Taiwan Normal University, Taiwan;
Email: hmtsai@ntnu.edu.tw
Dr. Wen-Cheng Wang, National Taiwan Normal University, Taiwan;
Email: wwang@ntnu.edu.tw

4. Collaboration with other IGU Commissions and Task Forces

This commission tentatively aims to work with other IGU Commissions, especially with the Island Commission in the future. The joint commission with Island Commission and Political Geography Commission will be held in 25-29 June 2016.

5. Cooperative efforts with ISSC and with ICSU programs

The commission will work with Future Earth Coasts project of the ICSU. These projects transformed from LOICZ into Future Earth-Coast in 2015.

7. 2015 South East Asia Sustainable Development Workshop

Dates: 14-23 Nov. 2015

The Workshop for the Challenge of Sustainable Development in South-East Asia

On Sunday, November 14, 2015, the Workshop for the Challenge of Sustainable Development in South-East Asia opened in Taipei. The workshop, commissioned by the Ministry of Technology, R.O.C., was held at the Global Change Research Center (GCRC) in National Taiwan University (NTU), with more than 40 scholars, government officials, and speakers attending the event. Of the 26 delegates, 22 were from South-Eastern Asian countries, including Indonesia, Laos, Malaysia, Myanmar, The Philippines, Thailand, and Vietnam; the remaining four were from India. We were also honored by the presence and contributions of 15 scholars and speakers who agreed to give lectures and lead discussions during the workshop. The majority of the invited speakers were local Taiwanese scholars, with the exception of three members

from the Future Earth—Coasts mission: Prof. Jeremy Gault, Dr. Bruce Glavovic, and Dr. Martin LeTissier, whose nationalities were Irish, South African, and British respectively.

The workshop was chaired by Prof. Juin-Chuan Lin, who delivered an encapsulating opening speech, which acted as an overview of the workshop and prepared the participants for the right mindset to approach the issues being discussed. The main aim of this workshop was to identify and provide insights into the common challenges of sustainable development for Southeastern Asian countries. During the nine-day event, discussions focused on four topics: Environmental Education, Energy and Natural Resources, Coastal and Maritime Issues, and Natural Hazards Mitigation. The topics were specifically chosen as these are four of the most common problems faced by Southeast Asia as we seek to strike a balance between modernization and environmental conservation.

Research studies in the field of environmental protection are undoubtedly of great importance. However, we believe that practical implementation of protection strategies requires our urgent attention as well. Therefore, the workshop featured a series of 15 speeches and lectures given not only by scholars but also by Taiwanese government officials. On the first day, Minister Kuo-Yen Wei of the Environmental Protection Agency shared with the delegates Taiwan's achievement in greenhouse gas reduction, followed by Minister Shin-Cheng Yeh's inspiring lecture on environmental education. Minister Yeh was an advocate in the passing of the *Environmental Education Act*. Each lecture was followed by a topical discussion session. Delegates were encouraged to share their thoughts and experiences drawn from their own country, while gaining a regional/international perspective from participants of different nationalities.

With a view to strengthening the ideas and concepts discussed in the workshop, a three-day field excursion was organized as part of the program. On the morning of November 20, the delegates traveled to central Taiwan and visited the 921 Earthquake Museum. The museum marked and commemorated the catastrophic earthquake that occurred on September 21, 1999 which left thousands of people dead and more than 10,000 injured. It is located at what was originally a campus of a junior high school. Collapsed buildings and stricken landscape were preserved to remind us of the severe damages caused by earthquakes, a natural disaster all Southeast Asian countries are prone to. Later that day, we paid a visit to the dilapidated Feng-Chiou Dam, also a victim of the earthquake. Torrential rain following the quake brought about a

large-scale mudslide, rendering the dam useless. The dam exemplified the importance of hazard mitigation as climate change increases the probability of intense precipitation.




1	2
3	4

1. The 921 Earthquake Museum
2. Feng-Chiou Dam
3. Sih-Cao Green Tunnel
4. Chi-Ku Salt Farming (Photo credit: Yu-Fang, Hsu)

As a final note, the workshop also included a special occasion on which NTU and the Future Earth officially signed a Memorandum of Understanding. The signing ceremony and the banquet were held in the evening of November 19, signifying the beginning of our cooperation with the Future Earth and the launch of its Taiwan office, which will act as a regional center for the mission. All delegates in the workshop were invited to witness this historical moment.

Thanks to the success of the program, we are currently planning for a second workshop of similar topics to be held this year, and the dates have been set on June 21-29, 2016. It is our wish to include a wider range of environment-related issues, especially those highly relevant to Southeastern Asian countries. The workshop is expected to take place at the same location as this year. Our vision is that, by influencing a group of elite participants, we can expand our power to influence the world. And from the positive feedback we got from the delegates, we believe that this vision is on its way to becoming reality.

8. Some publications of the commission members:

1. Hayakawa, Y.S., Oguchi, C.T., Ariga, N., Aoki, H. (2015) Spatial distribution of changes in rockwall surface at Yoshimi-Hyakuana cave, central Japan, revealed by repeated terrestrial laser scanning. Procedia Earth and Planetary Science, 15, 619–626. doi:10.1016/j.proeps.2015.08.114
2. Yener, K.A., Kulakoglu, F., Yazgan, E., Kontani, R., Hayakawa, Y.S., Lehner, J.W., Dardeniz, G., Öztürk, G., Johnson, M., Hacar, A. (2015) The discovery of new tin mines and production sites near Kültepe, ancient Kanesh in Turkey: a third Millennium BC highland production model. Antiquity, 89 (345), 596-612. doi:10.15184/aqy.2015.30

3. Hayakawa, Y.S., Oguchi, T., Saito, H., Kobayashi, A., Baker, V.R., Pelletier, J.D., McGuire, L.A., Komatsu, G., Goto, K. (2015) Geomorphic imprints of repeated tsunami waves in a coastal valley in northeastern Japan. Geomorphology, 242, 3–10. doi:10.1016/j.geomorph.2015.02.034
4. Gomez, C., Hayakawa, Y.S., Obanawa, H. (2015) A study of Japanese landscapes using Structure from Motion derived DSMs and DEMs based on historical aerial photographs: New opportunities for vegetation monitoring and diachronic geomorphology. Geomorphology, 242, 11–20. doi:10.1016/j.geomorph.2015.02.021
5. Dou, J., Paudel, U., Oguchi, T., Uchiyama, S., Hayakawa, Y.S. (2015) Shallow and deep-seated landslide differentiation using Support Vector Machines: A case study of the Chuetsu area, Japan. Terrestrial, Atmospheric and Oceanic Sciences, 26 (2-II), 227-239. doi:10.3319/TAO.2014.12.02.07(EOSI)
6. Hayakawa, Y.S., Oguchi, T., Saito, H., Kobayashi, A., Komatsu, G., Goto, K. (2015) Characteristics of erosional morphology by tsunami waves along the Sanriku Coast, northeastern Japan: Analysis using terrestrial laser scanning. Journal of Geography (Chigaku Zasshi), 124 (2), 241-258. doi:10.5026/jgeography.1234.241 (in Japanese with English abstract)
7. Obanawa, H., Hayakawa, Y.S., Kato, A., Gomez, C. (in press) Simplified mapping method using small UAV and GNSS equipped digital camera. Transactions, Japanese Geomorphological Union, 241-258. (in Japanese with English abstract)
8. Hayakawa, Y.S., Obanawa, H. (2015) Mapping cliff face changes around a waterfall using terrestrial laser scanning and UAS-based SfM-MVS photogrammetry. Proceedings of The International Symposium on Cartography in Internet and Ubiquitous Environments 2015, C5.

9. Obanawa, H., Hayakawa, Y.S. (2015) High-resolutional topographic survey using small UAV and SfM-MVS technologies in hardly accessible area. Proceedings of The International Symposium on Cartography in Internet and Ubiquitous Environments 2015, C4.
10. Fuchs, S., Keiler, M. & A. Zischg (2015). A spatiotemporal multi-hazard exposure assessment based on property data. Nat. Hazards Earth Syst. Sci. 15(9): 2127-2142.

11. Fuchs, S.; Keiler, M. & S. Sokratov (2015): Snow and avalanches. In: Huggel, C.; Carey, M.; Clague, J.J. & A. Kääb (eds.): The high-mountain cryosphere: environmental changes and human risks. Cambridge: Cambridge University

Press: 50-70

12. Zimmermann, M., and Keiler, M.: International Frameworks for Disaster Risk Reduction: Useful Guidance for Sustainable Mountain Development? Mountain Research and Development, 35, 195-202, 10.1659/mrd-journal-d-15-00006.1, 2015.

13. Papathoma-Köhle, M.; Zischg, A.; Fuchs, S.; Glade, T. & M. Keiler (2015): Loss estimation for landslides in mountain areas – An integrated toolbox for vulnerability assessment and damage documentation. Environmental Modelling and Software 63. p. 156-169

14. Jr-Chuan Huang , Chun-Chiang Lin, Shih-Chien Chan, Tsung-Yu Lee, Shih-Chieh Hsu, Cheing-Tung Lee, Jiun-Chuan Lin (2011) Stream discharge characteristics through urbanization gradient in Danshui River, Taiwan: perspectives from observation and simulation, Environ Monit Assess, DOI: 10.1007/s10661-011-2374-2 (SCI)
15. Wenske, D., Jen, C. H.,' BÖSE, M., Lin, J.C.(2012) Assessment of sediment delivery from successive erosion on stream-coupled hillslopes via a time series of topographic surveys in the central high mountain range of Taiwan. Quaternary International, 263, 14-25.
16. Lin, J. C. (2012) The impact and adaption of Typhoon hazard in Taiwan: a case study of Typhoon Morakot 2009. Tansactions, Japanese Geomorphological Union, 33(4): 445-452.
17. Ochiai, S., J.C. Lin, K. Kahsiwaya and Jen, C.H. (2012) Influence of construction of dams and waterway tunnels on sedimentation rate and bottom topography in Sun-Moon Lake, Taiwan, Japanese Geomorphological Union, 33(2): 149-170.
18. Huang J. C., C. C. Lin,, S. C. Chan, T. Y. Lee, S. C. Hsu, C. T. Lee and J. C. Lin (2012) Stream discharge characteristics through urbanization gradient in Danshui River, Taiwan: perspectives from observation and simulation, *Environ Monit* Assess,184(9), 5689-703.
19. Robinson, A. M. and Lin, J. C.(2014) Taiwan Geotourism: A Volcanic Experience. In: Erfurt-Cooper, P. (ed.) Volcanic Tourist Destinations, Geoheritage, Geoparks and Geotourism, Springer-Verlag Berlin Heidelberg 2014, 83-191.
20. Ochiai, S., Lin, J. C., Lin, J. W., Jen, C.H., Chen, W. H. and Kashiwaya, K. (2015) Sedimentation Processes following the Construction of Waterway

Tunnels in Sun Moon Lake, Taiwan. In: Kashiwaya, K., Shen, J. and Kim, J. Y. (eds) (2015) Earth Surface Processes and Environmental Change in East Asia—Records From Lake-catchment Systems, Springer-Verlag Japan 2015287-305.

21. Lin, J. C. (2016) Geomorphological Responses in a Dynamic Environment: How landform interact with human activities in Taiwan, Springer-Verlag
22. Sumner, P.D., Nel, W., Rughooputh, S.D.D.V, Boojhawon, R, Dhurmea, K., le Roux, J and Anderson, R (2016) Rainfall erosivity and soil erosion risk assessment in tropical island environments: a case study of Mauritius In Meadows, M and Lin JC (eds), Geomorphology and Society, Advances in Geographical and Environmental Sciences, Springer, p 217-230. DOI 10.1007/978-4-431-56000-5_13.
23. Nel, W., Hauptfleisch, A., Sumner, P.D., Boojhawon, R. Rughooputh, S.D.D.V and Dhurmea, K.R., (2016) Intra event characteristics of extreme erosive rainfall on Mauritius. Physical Geography, DOI:10.1080/02723646.2016.1189756
24. Meadows, M. & Lin, J.C (Eds) (2016) Geomorphology and Society, Springer,

9. Continuation

9.1Name of the Commission: Geomorphology and Society -- 2016-2020

We would like to maintain the Commission for the next four years and to promote an integrated discourse between physical geographers and other social and human scientists and researchers. So a complementary discourse and platform could be maintained for better understanding and application of geomorphology.

9.2Mission statement

The target of the Commission is to contribute to the strengthening of collaborative work among geomorphologists and human/social scientists and geographers. The aims that could be achieved by the target are three folds: (1) to advance physical geographic knowledge through involving discourses among geomorphologists and human geographers and other social scientists; (2) to fostering transdisciplinary capacity building for young geomorphologic researchers, and (3) to develop transdisciplinary knowledge of geomorphology and social sciences so that

applied geomorphology could become much comprehensive and thus benefit human society. Followings are listed missions:

1) To promote international collaboration in geomorphology within the IGU community.

2) To strengthen scientific cooperation with the International Association of Geomorphologists (IAG) and other international bodies related to geomorphology field.

3) To advance applied geomorphology research for policy makers and societal betterment.

4) To stimulate interaction and collaborative work among environmental scientists, in particular leading work teams in different aspects of geomorphology.

5) To strengthen scientific discourses among numerical, experimental and field observing geomorphologists.

6) To foster the exchange of and the dissemination of geomorphologic knowledge.

7) To organize and hold special sessions within the IGU Congress and Conferences, and in other academic forums.

9.3 Steering Commission Members

Chair: Jiun-Chuan Lin, Taiwan	jclin@ntu.edu.tw
Vice Chair: Irasema Alcántara-Ayala, Mexico	irasema@igg.unam.mx
Jonathan French, UK	j.french@ucl.ac.uk
Beate M.W. Ratter, Germany	ratter@geowiss.uni-hamburg.de
Yuichi S. Hayakawa, Japan	hayakawa@csis.u-tokyo.ac.jp
Werner Nel, South Africa	WNel@ufh.ac.za
Joy Obando, Kenya	obando.joy@ku.ac.ke
Margreth Keiler, Swiss	margreth.keiler@giub.unibe.ch
Herve Regnauld, France	herve.regnauld@uhb.fr
Chuan Tang, China	tangc707@gmail.com
Emmanuel Reynard, Swiss	Emmanuel.Reynard@unil.ch
Paul D. Sumner, South Africa	paul.sumner@up.ac.za
Secretary: Wen-Cheng Wang, Taiwan	wwang@gmail.com

Chair: Prof. Jiun-Chuan Lin

Department of Geography
National Taiwan University
Professor

No. 1 Sec. 4 Roosevelt Rd. Taipei, Taiwan
Vox: 886-2-3366-5831, 886-2-33665821
E-mail: jclin@ntu.edu.tw
URL:
http://www.geog.ntu.edu.tw/index.php?option=com_content&view=article&id=553&Itemid=120&lang=en
Research interests: environmental monitoring, mass wasting, watershed erosion, and disasters

---

Vice-Chair: Prof. Irasema Alcántara-Ayala

Institute of Geography
National Autonomous University of Mexico (UNAM)
Professor
Circuito Exterior, Ciudad Universitaria
04510, Coyoacán, México, D.F.
México City, Mexico
Vox: +52 55 56224335 ext. 45466
E-mail: irasema@igg.unam.mx
URL:http://www.igeograf.unam.mx/sigg/investigacion/geo_fis/personal.php?cual_personal=14
Research interests: mass movement processes, vulnerability, and integrated disaster risk management

---

Prof. Jonathan French

Coastal and Estuarine Research Unit, University College London
Professor
UCL Department of Geography Pearson Building Gower Street
London WC1E 6BT

Email: j.french@ucl.ac.uk
URL:http://www.geog.ucl.ac.uk/about-the-department/people/academic-staff/jon-french
Tel: +44 (0) 20 7679 0500
Fax: +44 (0) 20 7679 0565

Prof. Beate M.W. Ratter

Institute of Geography
University Hamburg
Professor
Bundesstrasse 55
20146 Hamburg, Germany

Email address: ratter@geowiss.uni-hamburg.de
URL:http://www.geo.uni-hamburg.de/en/geographie/mitarbeiterverzeichnis/ratter.html
Tel: +49 40 42838-5225
Fax: +49 40 42838-4981

Prof. Yuichi S. Hayakawa

Center for Spatial Information Science, The University of Tokyo
Associate Professor
5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8568, JAPAN
Vox: +81-4-71364306
Research interests: fluvial geomorphology, geospatial information sciences, and geoarchaeology

E-mail: hayakawa@csis.u-tokyo.ac.jp
URL: http://www.csis.u-tokyo.ac.jp/~hayakawa/

Prof. Joy Obando

Department of Geography, Kenyatta University
Capacity Building for Integrated Watershed Management
in Eastern Africa (IWMNET), Kenya
Associate Professor, Director of Financial Aid Office
P. O. Box 43844-00100, Nairobi, Kenya
Vox: +254 722 966 134
E-mail: obando.joy@ku.ac.ke , obandojoy@yahoo.com
URL:http://www.ku.ac.ke/schools/humanities/faculty/faculty-profiles?id=227

Research interests: soil erosion, land use changes, and integrated watershed management

---

Prof. Werner Nel

Department of Geography and Environmental Science
University of Fort Hare
Associate Professor
Alice, 5700, South Africa
Telephone+27406022146/+27437047398
E-mail: WNel@ufh.ac.za
Research interests: mountain and polar geomorphology, climate/surface process interaction, and climate change

---

Prof. Margreth Keiler

Institute of Geography, University of Bern
Associate Professor
Hallerstrasse 12, 3012 Bern, Switzerland
Telephone: +41(0)31 631 3277
E-mail: margreth.keiler@giub.unibe.ch
URL:
http://www.geography.unibe.ch/content/forschungsgruppen/angewandte_geomorphologie/gruppenportrait/margreth/index_eng.html
Research interests: mass movements, sediment flux, complex systems, human-environment interactions, natural hazards and risk

http://www.geography.unibe.ch/content/forschungsgruppen/angewandte_geomorphologie/wwwsgmg2015ch/index_eng.html

---

Prof. Herve Regnauld

Université of Rennes , France

Department of Geography, Rennes 2

Suite 211 A 02 99 14 18 40

E-mail: herve.regnauld@uhb.fr

Prof. Chuan Tang

State Key Laboratory of Geo-hazard Prevention and Geo-environment Protection, Chengdu University of Technology, China

Address: Cheng Du City of Si-Chuan Province, China
Zip code: 610059
Tel: (+86)028-84073193

E-mail: tangc707@gmail.com

Prof. Emmanuel Reynard

Institute of Geography and Sustainability, University of Lausanne
Bâtiment Anthropole, CH–1015 Lausanne, Switzerland

Tel +41 21 692 30 65
Mobile +41 79 331 72 44

Website: http://mesoscaphe.unil.ch/reynard/

E-mail:Emmanuel.Reynard@unil.ch

Professor Paul D. Sumner

Professor and Head of Department
Department of Geography, Geoinformatics and Meteorology
University of Pretoria
Geomorphologist (soil erosion, rock weathering, and mountain environments)

Tel:+27 12 420 3536

paul.sumner@up.ac.za
www.up.ac.za

9.4 Work Plan for 2016-2020

In the last two year, this commission did not form a complete list of corresponding memberships and mailing list. It should be prioritized as one main task for the next 4 years. In the meantime, as joint symposium of various IGU Commissions has proven to be productive, further joint symposiums deserve to be carried out with well thought out themes.

The major work plan for the next four years is listed as follows:

1. To organize sessions in IGU congress, regional conferences and other related meetings.

2. To hold workshops of training courses and for joint sessions among various commission members, scientists, government officials, post graduates, etc.

3. To organize research results of collaborative work to participate joint symposiums held by other IGU Commissions and related organizations.

4. To improve and update the web page of Geomorphology and Society for better communication and promotion purposes.

5. To publish working papers, pamphlets or books to promote Geomorphology *for* Society.

6. To hold occasional functioning meetings among steering commission members as resource permits.

7. Outreach:

(1) To hold occasional meetings or seminars for both environmental scientists and the society in general to increase the awareness for integrating geomorphologic knowledge for societies.

(2) To demonstrate the importance of the Geomorphology and Society. Due to climate change, the magnitude and frequency of natural processes brought huge damage to the society. It is our mission task to bring people to become aware of such change for hazard mitigation and building societal resilience.

(3) To take opportunity to work with other commissions, such as the sessions with the IAG and Nanjing University, China during the Beijing IGU congress, 2016.

(4) To organize another joint symposium at Koln University in September 2017 and 2018 in France (the most likely country)

(5) To work with IYGU project to increase the awareness of daily life geography for schools and human society in general.

(6) To work with Future Earth Coasts project. NTU is one of the regional center for this project.