

19th International Symposium on Geodynamics and Earth Tides

23-26 June, 2021

– Online & Wuhan –

Zoom link:

<https://zoom.us/j/5954540381?pwd=ZXJucW9vbWtvC2dXamhFYnh6d3VSQT09>

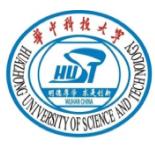
Zoom Meeting-ID: 595 454 0381; code: GET

website: <http://get2020.csp.escience.cn/>



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Innovation Academy for Precision Measurement Science and Technology (APM)
State Key Laboratory of Geodesy and Earth's Dynamics (SKLGED)
Huazhong University of Science and Technology (HUST)

Organized by: Innovation Academy for Precision Measurement Science and Technology (APM)
State Key Laboratory of Geodesy and Earth's Dynamics, CAS
Wuhan University
China University of Geosciences (Wuhan)
Institute of Seismology, China Earthquake Administration
National Precise Gravity Measurement Facility (PGMF)



Agenda

21-22 June (Monday/Tuesday), 2021

8:30—20:30 (UTC+8) / 02:30—14:30 (UTC+2) Zoom connection and presentation test for all orals/posters

22 June (Tuesday), 2021

9:30—18:00 (UTC+8) onsite registration at APM/CAS (#1 meeting room, 340 Xudong Road, Wuhan)

23 June (Wednesday), 2021

14:30—18:05 (UTC+8) / 08:30—12:05 (UTC+2)

Opening Ceremony (Convener: Heping Sun)

**14:30—15:00 (UTC+8)
08:30—09:00 (UTC+2)** Welcome speech (Zhiqiang Luo, Harald Schuh, Carla Braitenberg, Hou-Tse Hsu)

**15:00—16:00 (UTC+8)
09:00—10:00 (UTC+2)** Paul Melchior Medal Award (Introduction, Acceptance speeches)

15:00-15:01 / 9:00-9:01 C. Braitenberg: Opening of the Medal Ceremony
 15:01-15:05 / 9:01-9:05 B. Ducarme: Laudation on David Crossley
 15:05-15:20 / 9:05-9:20 David Crossley: Acceptance speech
 15:20-15:25 / 9:20-9:25 C. Braitenberg: Laudatio on Gerhard Jentzsch
 15:25-15:40 / 9:25-9:40 Gerhard Jentzsch: Acceptance speech
 15:40-15:45 / 9:40-9:45 Michel Van Camp: Laudatio on Walter Zürn
 15:45-16:00 / 9:45-10:00 Walter Zürn: Acceptance speech

**16:00—16:05 (UTC+8)
10:00—10:05 (UTC+2)** Memorial speech for the late Professor Tadahiro Sato (Heping Sun)

**16:05—16:30 (UTC+8)
10:05—10:30 (UTC+2)** Space Geodesy for Geodynamics Research (Invited), Harald Schuh (GFZ, Germany)

**16:30—16:50 (UTC+8)
10:30—10:50 (UTC+2)** Group Photo; Coffee/Tea Break

Keynote speeches (Conveners: Harald Schuh, Janusz Bogusz)

Time	Title	Speaker	Affiliation
16:50—17:15 (UTC+8) 10:50—11:15 (UTC+2)	Defining the Geophysical requirements to the future Mass-Change and Geosciences Satellite Constellation Mission	Carla Braitenberg	University of Trieste, Department of Mathematics and Geosciences, Italy
17:15—17:40 (UTC+8) 11:15—11:40 (UTC+2)	Earth's Gravity Tides and Its Application in Geodynamics in China	Heping Sun	Innovation Academy for Precision Measurement Science and Technology (APM), Chinese Academy of Sciences (CAS), China
17:40—18:05 (UTC+8) 11:40—12:05 (UTC+2)	Gravito-elastic signals originating from the Earth's interior: from seismic cycle to decadal core fluctuations	Séverine Rosat	University of Strasbourg, ITES (CNRS UMR7063), France

24 June (Thursday), 2021

14:30—19:30 (UTC+8) / 08:30—13:30 (UTC+2)

Session 1: Tides and non-tidal loading

Conveners: Jean-Paul Boy, Heping Sun, Hartmut Wziontek, David Crossley

Time	Title	Authors	First Affiliation
14:30—14:43 (UTC+8) 08:30—08:43 (UTC+2)	Gravity corrections for non-tidal ocean loading revisited	E.D. Antokoletz, H. Wziontek, H. Dobslaw, C.N. Tocho	Universidad Nacional de La Plata, Argentina
14:43—14:56 (UTC+8) 08:43—08:56 (UTC+2)	Empirical tidal and ocean tide models in Brazil	D. Arana, P.O. Camargo, E.C. Molina, D. Blitzkow	Universidade Federal do Paraná, Brasil
14:56—15:09 (UTC+8) 08:56—09:09 (UTC+2)	Comparison of degree 3 tidal loading effects from superconducting gravimeter records with unconstrained global ocean tide simulations	H. Wziontek, R. Sulzbach, H. Dobslaw, M. Thomas	Federal Agency for Cartography and Geodesy (BKG), Germany
15:09—15:22 (UTC+8) 09:09—09:22 (UTC+2)	A search for the difference between tidal gravity signals recorded on the ground and at a 520-meter depth by two superconducting gravimeters at LSSB, Rustrel, France	J. Hinderer, U. Riccardi, Y. Rogister, S. Rosat	University of Strasbourg, ITES, France
15:22—15:35 (UTC+8) 09:22—09:35 (UTC+2)	Crustal response to heavy rains in SW Japan 2017-2020	K. Heki, S. Arief, M. Yoshida	Hokkaido University, Japan
15:35—15:48 (UTC+8) 09:35—09:48 (UTC+2)	Comparison of GRACE and GNSS seasonal load displacements considering regional averages and discrete points	L. Zhang, H. Tang, W.K. Sun	University of Chinese Academy of Sciences, China
15:48—16:10 (UTC+8) 09:48—10:10 (UTC+2)	Coffee/Tea Break / Breakout rooms for posters		

Session 2: Geodynamics and the earthquake cycle

Conveners: Severine Rosat, Kosuke Heki, Thomas Jahr, Wenke Sun

16:10—16:30 (UTC+8) 10:10—10:30 (UTC+2)	Possible relationship between tides and decadal changes of seismicity in Japan	Y. Tanaka	University of Tokyo, Japan
16:30—16:45 (UTC+8) 10:30—10:45 (UTC+2)	Moho interface changes beneath the Tibetan Plateau based on GRACE data	W.L. Rao, W.K. Sun	University of Chinese Academy of Sciences, China
16:45—17:00 (UTC+8) 10:45—11:00 (UTC+2)	A new method for calculating the coseismic gravity gradient changes based on the spherical dislocation theory	Y.T. Ji, H. Tang, W.K. Sun	University of Chinese Academy of Sciences, China
17:00—17:15 (UTC+8) 11:00—11:15 (UTC+2)	Multifractal analysis of gravity data recorded by superconducting gravimeter at Badargadh, Gujarat, India	C.S. Pedapudi, M. Katlamudi, S. Rosat	Institute of Seismological Research, Gandhinagar, India
17:15—17:30 (UTC+8) 11:15—11:30 (UTC+2)	Estimation of the ${}_2S_1$ mode parameters after the Great Sumatra-Andaman Earthquake based on the superconducting gravimeter data	V.K. Milyukov, M.P. Vinogradov	Lomonosov Moscow State University, Russia
17:30—17:45 (UTC+8) 11:30—11:45 (UTC+2)	Coffee/Tea Break / Breakout rooms for posters		
17:45—18:30 (UTC+8) 11:45—12:30 (UTC+2)	Poster Session (Convener: Kosuke Heki)		
18:30—19:30 (UTC+8) 12:30—13:30 (UTC+2)	IGETS internal business meeting		

25 June (Friday), 2021

14:30—18:30 (UTC+8) / 08:30—12:30 (UTC+2)

Session 3: Variations in Earth rotation

Conveners: Chengli Huang, Harald Schuh, Ben Chao, Janusz Bogusz

Time	Title	Authors	First Affiliation
14:30—14:45 (UTC+8) 08:30—08:45 (UTC+2)	The effect of the topography of the core-mantle boundary on the free core nutation	M. Zhang, C.L. Huang	Shanghai Astronomical Observatory (SHAO), CAS, China
14:45—15:00 (UTC+8) 08:45—09:00 (UTC+2)	Estimation of Free Core Nutation (FCN) parameters and availability of computing options	W.W. Yang, X.M. Cui, J.Q. Xu	APM, CAS, China
15:00—15:15 (UTC+8) 09:00—09:15 (UTC+2)	On the ~8.6yr periodic oscillation in length-of-day and its potential physical mechanism	P.S. Duan, C.L. Huang	SHAO, CAS, China
15:15—15:30 (UTC+8) 09:15—09:30 (UTC+2)	Hydrological and cryospheric angular momentum estimates based on GRACE, GRACE-FO and SLR data	J. Śliwińska, M. Wińska, J. Nastula	Polish Academy of Sciences, Poland
15:30—15:45 (UTC+8) 09:30—09:45 (UTC+2)	On the Eigen-Mode Excitation of Linear Oscillators and the Earth's Polar Motion	M. Fang, X.H. Liao, X.Q. Xu	MIT, USA
15:45—16:05 (UTC+8) 09:45—10:05 (UTC+2)	Coffee/Tea Break / Breakout rooms for posters		

Session 4: New technology and software development

Conveners: Olivier Francis, Jürgen Müller, Hannu Ruotsalainen, Zhongkun Hu

16:05—16:25 (UTC+8) 10:05—10:25 (UTC+2)	Fast computation of dislocation Love numbers and Green's functions	J. Zhou, E. Pan, M. Bevis	APM, CAS, China
16:25—16:40 (UTC+8) 10:25—10:40 (UTC+2)	Combination of Tsoft and ET34-ANA-V80 software for the preprocessing and analysis of tide gauge data in French Polynesia	B. Ducarme, J.-P. Barriot, F.Z. Zhang	Catholic University of Louvain, Belgium
16:40—16:55 (UTC+8) 10:40—10:55 (UTC+2)	Regularization approach to tidal analysis	A. Ciesielski, T. Forbriger	Karlsruhe Institute of Technology, Germany
16:55—17:10 (UTC+8) 10:55—11:10 (UTC+2)	Integrating Convolutional Neural Networks to remotely predict tidal changes	T.Y. Chen	Academy for Mathematics, Science, and Engineering, USA
17:10—17:25 (UTC+8) 11:10—11:25 (UTC+2)	Optimal lunar internal structure model obtained by neural network method	B.B. Liao, J.Q. Xu, X.D. Chen, H.P. Sun, J.C. Zhou	APM, CAS, China
17:25—17:45 (UTC+8) 11:25—11:45 (UTC+2)	Coffee/Tea Break / Breakout rooms for posters		
17:45—18:30 (UTC+8) 11:45—12:30 (UTC+2)	Poster Session (Convener: Olivier Francis)		

26 June (Saturday), 2021

14:30—18:30 (UTC+8) / 08:30—12:30 (UTC+2)

Session 5: Time variable gravity and mass redistribution

Conveners: Cheinway Hwang, Carla Braatenberg, Holger Steffen, Wei Feng

Time	Title	Authors	First Affiliation
14:30—14:50 (UTC+8) 08:30—08:50 (UTC+2)	The time-variable gravity field estimates and their impact in the detectability of the Earth's core signals	H. Lecomte, S. Rosat, M. Mandea	University of Strasbourg, France
14:50—15:05 (UTC+8) 08:50—09:05 (UTC+2)	Topographic effects in pressure and hydrology corrections to gravity	D. J. Crossley	Saint Louis University, USA
15:05—15:20 (UTC+8) 09:05—09:20 (UTC+2)	Spatiotemporal evolution of Antarctic ice sheet elevation and mass during 2003-2020 from satellite altimetry and gravimetry data	L.Z. Yue, G. Chen, N.F. Chao, S. Wang, Y. Hu, Y.Z. Zhang	China University of Geosciences, China
15:20—15:35 (UTC+8) 09:20—09:35 (UTC+2)	The sustainability of groundwater in overstressed aquifers in Northern Africa and Arabian Peninsula using GRACE and hydrological models	H.A. Mohasseb, W.B. Shen, H. A. Abd-Elmotaal	Wuhan University, China
15:35—15:50 (UTC+8) 09:35—09:50 (UTC+2)	Estimates of glacier mass balance in High Mountain Asia based on laser altimetry and gravimetry	Q.Y. Wang, S. Yi, W.K. Sun	University of Chinese Academy of Sciences, China
15:50—16:05 (UTC+8) 09:50—10:05 (UTC+2)	Analysis and mitigation of biases in Greenland ice sheet mass balance trend estimates from GRACE mascon products	J.J. Ran, L.Y. Xin	Southern University of Science and Technology, China
16:05—16:25 (UTC+8) 10:05—10:25 (UTC+2)	Coffee/Tea Break / Breakout rooms for posters		

Session 6: Monitoring of subsurface fluids

Conveners: Jacques Hinderer, Jaakko Makinen, Yoichi Fukuda, Giuliana Rossi

16:25—16:45(UTC+8) 10:25—10:45 (UTC+2)	Earth Tide signals in high-resolution temperature recordings: Are they detectable?	T. Jahr, G. Buntebarth, M. Sauter	Friedrich Schiller University Jena, Germany
16:45—17:00 (UTC+8) 10:45—11:00 (UTC+2)	Studying sensitivity of GPS technique to changes of vertical displacements induced by groundwater variations	J. Bogusz, A. Lenczuk, A. Klos	Military University of Technology, Poland
17:00—17:15 (UTC+8) 11:00—11:15 (UTC+2)	Hydrogravimetry in a karst aquifer from a vertical dipole of superconducting gravimeters, France	S. Kumar, S. Rosat, J. Hinderer, M. Mouyen	University of Strasbourg, France
17:15—17:30 (UTC+8) 11:15—11:30 (UTC+2)	Hybrid modeling of tidal oscillation of groundwater in unconfined wells on a circular island – a case study on Sakurajima volcano, Japan	S. Okubo, K. Yamamoto, M. Iguchi	Southwest Jiaotong University, China
17:30—17:40 (UTC+8) 11:30—11:40 (UTC+2)	Coffee/Tea Break / Breakout rooms for posters		
17:40—18:10 (UTC+8) 11:40—12:10 (UTC+2)	Poster Session (Convener: Wei Feng)		
18:10—18:30 (UTC+8) 12:10—12:30 (UTC+2)	Closing ceremony		

List of poster presentations

2 min presentation for each poster

24 June (Thursday), 2021

17:45—18:30 (UTC+8) / 11:45—12:30 (UTC+2)

1.1	Comparison of loading models with superconducting gravity records and possible upgrade of IGETS Level-3 data	J.-P. Boy
1.2	Multisensory tidal gravity experiment the Borowa Gora Geodetic-Geophysical Observatory	K. Karkowska, P., Dykowski, M., Sekowski , J., Bogusz, T. Olszak
1.3	Tidal datum analysis on the west coast of Sumatra waters and the Makassar Strait, Indonesia	B.T. Widyantoro, A.A. Putra
1.4	Test of ocean tide loading models on the basis of strain data measured in the Vyhne Tidal Station, Slovakia	Ladislav Brimich, Martin Bednarik, Jozef Bodil, Gyula Mentes
1.5	About the influence of pressure waves in tidal gravity records	Bernard Ducarmem, Klaus Schueler
1.6	Absolute Gravity Measurements Using FG5-210 and Scale Factor Calibration of iGrav-021 at Jang Bogo Station, Antarctica	Y. Fukuda, J. Okuno, K. Doi, C.K. Lee
1.7	Adriatic Sea tidal and non-tidal effects on continuous gravity observations aimed to recover subsurface hydrology	T. Pivetta, C. Braitenberg, F. Gabrovšek, G. Gabriel
1.8	Groundwater Influence on the Harmonic Analysis of Tidal Gravity Observations at the National Geodetic Observation Station in Wuhan, China (Wuhan Station)	Qianqian He, Xiaodong Chen
1.9	Analysis of GPS tidal displacements at continental and coastal sites in Argentina to validate global tidal models	J. C. Navarro, S. A. Miranda, A. H. Herrada
1.10	Investigation of jumps and other anomalies in tidal records and some problems of regional geodynamics	V.P. Shliakhovy, R.V. Shyian and V.V. Shliakhovy
2.1	Hydrological Load Effect in the Tibetan Plateau: from GRACE or Hydrological data?	Weilong Rao, Wenke Sun
2.2	Observation of Free Oscillations after the 2010 Chile and 2011 Japan earthquakes by Superconducting Gravimeter in Kutch, Gujarat, India	Chandra Sekhar Pedapudi, Madhusudhanarao Katlamudi, Severine Rosat
2.3	Viscoelastic Post-Seismic Deformations Due to Different Rheology Models	He Tang, Wenke Sun
2.4	A new method for calculating the coseismic gravity gradient changes based on the spherical dislocation theory	Yuting Ji, He Tang, Wenke Sun
2.5	Contribution of poroelastic rebound to early postseismic deformation in the 2015 Mw 8.3 Illapel Earthquake, Chile	Haozhe Yang, Rumeng Guo, Jiangcun Zhou, Heping Sun
2.6	The 23 June 2020 Mw7.4 Oaxaca earthquake: Characteristics of coseismic slip and afterslip based on GPS and InSAR	Xiongwei Tang, Jianqiao Xu, Rumeng Guo
2.7	Low-order Toroidal Modes of the 2011 Tohoku Earthquake Observed with Borehole Tensor Strainmeters	Zhang Geng, Xu Jianqiao, Zhang Lingyun, Chen Xiaodong, Sun Heping
2.8	Investigation of seismic activity by means of spaced tide-recording systems	V.A. Volkov, M.N. Dubrov, J. Mrilina, V. Polák
2.9	Comparison of extensometric results measured in the Vyhne Tidal Station and in the Sopronbánfalva Geodynamic Observatory	Gy. Mentes, L. Brimich, M. Bednárik, J. Bódi

2.10	Regional Water Storage Changes in the Tibetan Plateau Based on GRACE/GRACE-FO and hydrological data	Cao Liu, Weilong Rao, Wenke Sun
2.11	Analysis of coordinate time series of DORIS stations on Eurasian plate and the plate motion based on SSA and FFT methods	Q.L. Kong, L.G. Zhang , W. H. Fang, L.T. Han, X.Y. Kong, T.F. Wang, C.S.Li
2.12	Crustal movement by the 2019 Typhoon Hagibis	W. Zhan, K. Heki
2.13	Gravity Variations Preceding the Large Earthquakes in the Qinghai-Tibet Plateau, 2008-2017	Yiqing Zhu, Yunfeng Zhao, Fang Liu, Guoqing Zhang
2.14	Coseismic fault-propagation folding during the 2015 Mw 5.7 Dajal earthquake on the Sulaiman Fold and Thrust belt from Sentinel-1A interferometry	Javed, M.T., Javed, F., Barbot, S., Braitenberg, C., Ali, A.

25 June (Friday), 2021
17:45—18:30 (UTC+8) / 11:45—12:30 (UTC+2)

3.1	Analysis of 25 Years of Polar Motion Derived from the DORIS Space Geodetic Technique using FFT and SSA methods	Q.L. Kong, L.G. Zhang, J.Y. Guo
3.2	On the ~ 7 year periodic signal in length of day from a frequency domain stepwise regression method	C.C. Hsu, P.S. Duan, X.Q. Xu, Y.H. Zhou, C.L. Huang
3.3	Relationship between terrestrial water change and polar motion	S. Liu, S. Deng, X. Mo
3.4	Assessment of Earth Orientation Parameters solved by a weekly combination of GNSS/SLR/VLBI/DORIS at the parameter level	Lizhen LIAN, Chengli HUANG, Jin ZHANG
3.5	Researches on Surficial Fluid Excitations of the Earth and Mars' Rotational Variations	Yonghong Zhou, Xueqing Xu, Cancan Xu, Zhaoyang Kong, Xianran An, Xinhao Liao, Jianli Chen, David A. Salstein
3.6	Possibility of tidal friction generated differential rotation of the lithosphere and mantle in the case of viscous velocity zone (LVZ)	Peter Varga, Csilla Fodor
3.7	Seismogenic mechanism of Lushan earthquake and variation of regional gravity field	Yunfeng Zhao, Yiqing Zhu, Fang Liu
3.8	Prediction of length of day using the singular spectrum analysis and autoregressive integrated moving average model	Lei Yu, Zhaodanning
4.1	Analytical method to computation of dislocation Love numbers	J. Zhou, E. Pan, M. Bevis
4.2	Adaptive Monte Carlo Method Used for Parameter Estimation and Precision Estimation of Multiplicative Error Model	Xinlei Luo, Leyang Wang
4.3	Novel Sensors and Quantum Technology for Geodesy	Jürgen Müller
4.4	Morphological filter for removing spike-like noises in superconducting gravimeter records in Taiwan	Miao-Hsiang Peng, Cheinway Hwang
4.5	Calibration of Superconducting Gravimeter at 0.01%	O. Francis
4.6	The Program for Tidal Prediction ATLANTIDA3.1_2019	Evgeny Spiridonov, Olga Vinogradova
4.7	AURORA1.1_2019: An Atmospheric Loading Software	Evgeny Spiridonov, Olga Vinogradova
4.8	Improvements of FG5/FG5X gravimeters and the effect on calibrations of superconducting gravimeters	V. Pálinkáš, P. Křen, M. Vařko, P Maška
4.9	From weak tides to seismic-tidal technology or almost 100 years of Earth Tides research at the PGO	V.P. Shliakhovy, R.V. Shyian, V.V. Shliakhovy

26 June (Saturday), 2021
17:40—18:10 (UTC+8) / 11:40—12:10 (UTC+2)

5.1	Application of superconducting gravimeter in the 10th Internatinoal Comparison of Absolute Gravimeters	Lishuang Mou, Shuqing Wu, Jinyang Feng
5.2	Global crustal effects of gravitational curvatures: A case study in China	X.L. Deng, W.B. Shen, M. Yang, J. Ran
5.3	Marine Gravity and Geoid Determined from HY-2A/2B Altimeter over the South China Sea	Shuai Wang, Nengfang Chao, Yanze Zhang, Lianzhe Yue, Ying Hu
5.4	Understanding the dynamic changes of Area-Level-Depth-Storage in the Poyang Lake during 2003-2020 using multi-source satellite and in-situ data	Ying Hu, Nengfang Chao, Lianzhe Yue, Yanze Zhang, Shuai Wang
5.5	Spatial and Temporal Variability of Arctic Sea Ice Thickness and Volume from CryoSat-2 and Its Possible Drivers	Yanze Zhang, Nengfang Chao, Ying Hu, Shuai Wang, Lianzhe Yue
5.6	Using GRACE data to assess the applicability of GLDAS models in China	Yue Shen, Qiuyu Wang, Weilong Rao, Wenke Sun
5.7	Fluid-bearing media around the superconducting gravity station SG49 in the Tatun Volcano Group, northern Taiwan	Cheinway Hwang, Tzuyi Lien
5.8	Ongoing Inland Mud Diapirism and its interaction with strike-slip faulting in SW Taiwan based on the absolute gravimetry	Kai-Chien Cheng, Ling-Ho Chung, Kuo-En Ching, Ching-Chung Cheng, Yuan-Hsi Lee, Song-Chuen Chen, Wei-Chia Hung, Cheinway Hwang
5.9	Effect analysis of an Improved algorithm of satellite gravity inversion of the Moho depth—a case example for the South China sea	Weibo Rao, Nan Yu, Xinyu Xu, Yifei Zhang
5.10	Gravity variation and gravimetric factor inside the Earth owing to tidal forces	Yves Rogister, Jacques Hinderer
5.11	Determination of Geopotential Difference Between Atomic Clocks Onboard Satellites and on Ground Using Optical Ground to Space Time Transfer Link	Abdelrahim Ruby, Wen-Bin Shen , Ahmed Shaker, Mostafa Ashry
6.1	Quantitative Separation of Groundwater Storage Changes in the Local Vadose Zone Using the Superconductive Gravity Technique	Qianqian He, Xiaodong Chen, Heping Sun, Jianqiao Xu, Ziwei Liu, Shijian Zhou, Zhigao Chen
6.2	Observations of the local hydrological cycle and contribution to gravity at Metsähovi, Finland	A. Raja-Halli, H. Virtanen, M. Nordman