

EISOLS 2010

Programme by Sessions



Saturday 16th and Sunday 17th October:

WORKSHOPS: (1) Subsidence Monitoring, (2) Modflow simulation of land subsidence and groundwater flow, and (3) Satellite and ground based radar interferometry for measuring surface motion (*see workshop's agendas in the EISOLS website*).

ORAL PRESENTATIONS (Teatro Hall, Centro Académico Cultural, CAC)

Time	Monday 18th October	Authors	G e o E X P O
8h20	Opening 8h20-9h20		
	Session 1: Earth Fissures, Fracturing and Faulting Related to Land Subsidence	Chairman: G. Gambolati	
09h20	KEYNOTE: Mechanisms for earth fissure formation in heavily pumped basins	<i>T. J. Burbey</i>	
10h00	Implications of ground-deformation measurements across earth fissures in subsidence areas in the southwestern USA	<i>T. L. Holzer</i>	
10h20	Soil fracturing induced by land subsidence	<i>G. Auvinet</i>	
10h40	On the mechanisms for earth fissuring in Las Vegas valley: a numerical analysis of pumping-induced deformation and stress	<i>M. Hernández-Marín & T. J. Burbey</i>	
11h00	BREAK		
11h20	Advances in geotechnical characterization of soil fracturing in Mexico City basin	<i>G. Auvinet, E. Méndez & J. Lermo</i>	
11h40	Monitoring land-surface deformation on Bicycle Lake playa, Fort Irwin, California, USA	<i>J. Densmore, K. Ellett, J. Howle, M. Carpenter & M. Sneed</i>	
12h00	Monitoring of land subsidence and fracturing in Iztapalapa, Mexico City	<i>D. Carreón Freyre, M. Cerca, R. Gutiérrez Calderón & M. Huerta Ladrón de Guevara</i>	
12h20	Microtremor measurements to detect zones of potential cracking in the basin of México	<i>J. Lermo, E. Ovando & L. Espinosa</i>	
12h40	Simulation of ground failure due to groundwater pumping	<i>Janna, C., Ferronato, M., Gambolati, G. & Teatini, P.</i>	
13h00	Application of Wigner-Ville distribution to identify anomalies in GPR profiles	<i>M. A. Elizondo, R. E. Chávez, M. E. Cámara & A. Tejero</i>	

13h20	LUNCH (Restaurant Misión Juriquilla Hotel)		
14h20	POSTERS 14h20 -15h40		
	Session 2: Modelling Land Subsidence and Associated Hazard	Chairman: D. Galloway	G e o E X P O
15h40	Use of the SUB-WT Package for MODFLOW to simulate aquifer-system compaction in Antelope Valley, California, USA	<i>Stanley A. Leake & Devin L. Galloway</i>	
16h00	Monitoring and modelling 3-D ground movements induced by seasonal gas storage in deep reservoirs	<i>P. Teatini, N.Castelletto, M. Ferronato, C. Janna, G. Gambolati, E. Caio, D. Marzorati, D. Colombo, A.Ferreti, A. Bagliani, S. Mantica, & F. Rocca.</i>	
16h20	A regional land subsidence model embodying complex deformation characteristics	<i>S. Ye, Y. Xue, J. Wu, Z. Wei & Q. Li</i>	
16h40	Modelling land subsidence processes induced by fast rainwater infiltration through fractures into the unsaturated zone	<i>I. Martinez, R. Hinkelmann & S. Savidis</i>	
17h00	Nonlinear analysis of land subsidence due to groundwater level oscillation by a finite difference method	<i>Hessam Yazdani, M. M. Toufigh & Amin Masoudzade</i>	
17h20	BREAK		
17h40	Thermo-poro-elastic effects in the anthropogenic uplift of Venice by deep seawater injection	<i>N. Castelletto, M. Ferronato, G. Gambolati, C. Janna & P. Teatini</i>	
18h00	An analytical solution of plane strain consolidation due to a point sink within a fluid-saturated poro-elastic media	<i>Pei-Chao Li, Yue-Lei He, Yi-Ming Mi & Shi-Liang Gong</i>	
18h20	Research on a 3-D visualized strata model virtual reality system of land subsidence in Suzhou-Wuxi-Changzhou area	<i>Yu Jun, Su Xiao-Si, Zhu Lin, Duan Fu-Zhou, Pan Yun, Gao Li & Wu Shu-Liang</i>	
18h40	Inverting subsidence data to detect possible compartmentalization in a gas reservoir in The Netherlands	<i>K. Visser, A. G. Muntendam-Bos, G. Kunakbayeva, O. Leeuwenburgh, E. Peters & P. A. Fokker</i>	
19h00	Impact of longwall mining of coal on highways in southwestern Pennsylvania	<i>J. J. Gutiérrez, L. E. Vallejo, J. S. Lin & R. Painter</i>	

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19h20	Integration of geological and hydrogeological features for subsidence modelling in volcanic zones	<i>G. Ochoa-González & D. Carreón-Freyre</i>	
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Time	Tuesday 19th October	Authors	Technical Meeting
	Session 3: Land Subsidence related to Geological and Geomechanical Processes	Chairman: K. Prince	
08h20	KEYNOTE: Land subsidence processes and associated ground fracturing in central Mexico	<i>D. Carreón-Freyre</i>	GeoEXPO
09h00	Subsidence in the Holocene delta of The Netherlands	<i>L. M. Vonhögen, P. J. Doornenbal, Ger de Lange, P. A. Fokker & J. L. Gunnink</i>	
09h20	Is there a tectonic component to the subsidence process in Morelia, Mexico?	<i>E. Cabral-Cano, A. Arciniega-Ceballos, O. Díaz-Molina, F. Cigna, A. Ávila-Olivera, B. Osmanoglu, T. Dixon, C. Demets, V. H. Garduño-Monroy, F. Vergara-Huerta, J., E. Hernández-Quintero</i>	
09h40	Zonation and prediction of land subsidence: case study, Kerman, Iran	<i>S. M. Vaezi Nejad, M. M. Toufigh & S. M. Marandi</i>	
10h00	Zoning map of ground failure risk due to land subsidence of San Luis Potosí, Mexico	<i>J. Pacheco-Martínez, J. Arzate-Flores, R. López-Doncel, R. Barboza-Gudiño, J. L. Mata-Segura, A. Del-Rosal-Pardo, J. Aranda-Gómez</i>	
10h20	Integrated study of land subsidence in Morelia, Michoacán, Mexico	<i>J. A. Ávila-Olivera, V. H. Garduño-Monroy & P. Farina</i>	
10h40	Subsidence caused by groundwater withdrawal at the bottom of the <i>Rincón de Parangueo</i> Maar, Mexico	<i>J. Aranda-Gómez, J. Pacheco-Martínez, G. Levresse, E. Chacón-Baca, M. Charles-Polo, G. González-Naranjo, A. del Rosal</i>	

11h00	BREAK		
11h20	An elasto-viscoplastic model to estimate regional subsidence of Mexico City caused by water pumping	<i>A. Ossa & E. Ovando-Shelley</i>	GeoEXPO
11h40	Microcracking of expansive soils during shrinkage processes: roles of mineralogy and microstructure	<i>M. Audiguier, R. Cojean & Z. Geremew</i>	
12h00	Ground subsidence induced by backfill-mining of a nickel mine and development forecasts	<i>F. S. Ma, H. J. Zhao, Y. M. Zhang & J. Guo</i>	
12h20	Instability of the urbanized flank of “El Peñón del Marques” volcanic edifice and its relation to land subsidence in Mexico City	<i>M. Cerca, D. Carreón-Freyre & R. Gutiérrez</i>	
12h40	Analysis of engineering land subsidence effect caused by shield construction for tunnels	<i>Y. Tianliang, Y. Xuexin, W. Hanmei, Z. Longxi, X. Zhun & Z. Yibin</i>	
13h00	Geometry and monitoring with GPS of the subsidence-creep-fault processes in Celaya, Guanajuato, Mexico	<i>J. E. Diaz Salmeron, V. M. Hernandez Madrigal, V.H. Garduño Monroy, N. Giordano, E. Cabral Cano, O. Diaz Molina y V.A.Camargo Valencia</i>	
13h20	LUNCH (Restaurant Misión Juriquilla)		
14h20	POSTERS 14h20 -15h40		
15h40	Assessment of land subsidence associated with intense erosion zones in the Zacatecas and Guadalupe quadrangles, Mexico	<i>F.J. Escalona-Alcazar, L. A. Delgado-Argote & A. F. Rivera-Salinas</i>	(a.2 Hall CAC) Land Subsidence and Geotechnical Engineering TC 214 (ISSMGE-SMIG) 1. Geotechnical interpretation and modeling of subsidence problems and their principal consequences in geotechnical engineering (G. Auvinet)
16h00	The model test about over-consolidated soil's stress and deformation as water head increasing	<i>S. Gangchen; P. Jianbing; D. Haitao; L. Xinsheng; H. Xiaofeng; S. Xiaohan</i>	
16h20	Geological study and electrical resistivity tomography of Ameca, Jalisco, Mexico	<i>A. Malagón, J. Rosas-Elguera, M. A. Alatorre, G. Perez & R. Maciel</i>	
16h40	Geologic setting of active faulting associated to land subsidence at the Aguascalientes and Queretaro	<i>J. Martinez-Reyes and L. M. Mitre-Salazar</i>	
17h00	Land subsidence of the Aguascalientes Valley, México: historical review and present situation	<i>M.A. Romero-Navarro, J. Pacheco-Martínez, J. A. Ortiz-Lozano, M. E. Zermeño-de León,</i>	

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		<i>G. Araiza-Garaygordobil & E. Mendoza-Otero</i>	2. Land subsidence in the USA (D. Galloway)
17h20	BREAK		3. Land Subsidence in Mexico (E. Ovando)
17h40	Meeting for the consolidation of a group working on Land Subsidence in Mexico (IHP-UNESCO Mexico)		4. How Mexican foundation engineering deal with Land Subsidence problems (W. Paniagua)
18h40			
19h20	<i>Cultural Activity in Querétaro Downtown</i>		

Wednesday 20th October:

One day field trip in Querétaro, Celaya and San Miguel de Allende (Guide: M. Cerca).

Time	Thursday 21th October	Authors	Technical Meeting
	Session 4: Monitoring Techniques of Ground Displacements and Subsurface deformation	Chairman: F. Barends	GeoEXPO
08h20	KEYNOTE: Advanced monitoring techniques for mapping land displacement on the Venice coastland with satellite SAR data	<i>T. Strozzi, L. Tosi, P. Teatini, U. Wegmüller, M. Santoro & L. Carbognin</i>	
09h00	Subsidence and fault hazard maps using PSI and permanent GPS networks in Central Mexico	<i>E. Cabral-Cano, B. Osmanoglu, T. Dixon, S. Wdowinski, C. DeMets, F. Cigna & O. Díaz-Molina</i>	
09h20	Measurement of land subsidence using interferometry, Coachella Valley, California	<i>M. Sneed</i>	
09h40	DInSAR analysis of land subsidence caused by geothermal fluid exploitation in the Mexicali Valley, B.C., Mexico	<i>O. Sarychikhina, E. Glowacka, F. suarez-Vidal1 & R. Mellors</i>	
10h00	Large area observation of land subsidence by PSInSAR and determination of the cause of local land subsidence	<i>K. Daito, S. Saeki, S. Kuzuoka & T. Mizuno</i>	

10h20	Radar interferometry-based mapping of the present land subsidence along the low-lying northern Adriatic coast of Italy	<i>G. Bitelli, F. Bonsignore, L. Carbognin, A. Ferretti, T. Strozzi, P. Teatini, L. Tosi & L. Vittuari</i>	GeoEXPO
10h40	Mexico City subsidence analysis assisted by InSAR	<i>P. López-Quiroz, M. P. Doin, F. Tupin, P. Briole & J. M. Nicolas</i>	
11h00	BREAK		
11h20	Monitoring swelling soils through PSI and DinSAR interferometry: applications in eastern Paris Basin, France	<i>H. F. Kaveh, B. Defontaine, B. Fruneau, R. Cojean, M. Audiguier, A. Arnaud & J. Duro</i>	GeoEXPO
11h40	Land subsidence at the Kujukuri Plain in Chiba Prefecture, Japan: Evaluation and monitoring environmental impacts	<i>H. Obanawa, T. Tokunaga, S. Rokugawa, T. Deguchi & T. Nakamura</i>	
12h00	Long-term differential InSAR monitoring of the Lumpur Sidoarjo mud volcano (Java, Indonesia) using ALOS PALSAR imagery	<i>A. Thomas, R. Burren, R. Holley, Ch. Meikle, D. Shilston</i>	
12h20	Subsidence monitoring of an Iranian oil field inferred from SAR interferometry	<i>N. Fouladi Moghaddam, A. A. Matkan, M. R. Sahebi, M. Roostaei & H. R. Baqtiari</i>	
12h40	Using extensometer and Earth tide data to quantify fractured crystalline-rock properties	<i>T. J. Burbey & L. C. Murdoch</i>	
13h00	Continuous monitoring techniques of fault displacement caused by geothermal fluid extraction in the Cerro Prieto Geothermal Field (Baja California, Mexico)	<i>E. Glowacka, O. Sarychikhina, F. A. Nava, F. Suarez, J. Ramirez, M. Guzman, B. Robles, F. Farfan, G. Diaz, De Cossio Batani</i>	
13h20	LUNCH (Restaurant Misión Juriquilla)		
14h20	POSTERS 14h20 -15h40		
15h40	High precision subsidence measurements for geophysical inversion	<i>F. Rocca, A. Ferretti, A. Tamburini, F. Novali, A. Rucci, G. Falorni</i>	(a.2 Hall CAC)
16h20	Integrated monitoring network for surface deformation in Capo Colonna archaeological area, Crotona, Italy F.	<i>Verdecchia, C. Zoccatelli, E. Norelli & R. Miandro</i>	

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16h40	Monitoring land subsidence over a shallow gas reservoir in India using GPS	<i>P. R. Patel</i>	Round Table Water Management Agencies CONAGUA CEA Gro. COTAS SACM
17h00	Measuring seabed altimetric variations with a repeat-track SAS interferometry experiment: processing and results	<i>R. De Paulis, C. Prati, S. Scirpoli, P. A. Sletner & A. Tesei</i>	
17h20	BREAK		
17h40	Land subsidence monitoring system in the southwest of Kanto groundwater basin, Japan	<i>A. Kagawa, K. Furuno</i>	
18h00	Acoustic monitoring of seabed subsidence by means of an AUV-mounted, high-frequency imaging sonar	<i>S. Biagini, C. Carmisciano, R. De Paulis, F. Gasparoni, P. Guerrini, C. Prati, F. Rocca, S. Scirpoli, A. Tesei</i>	
18h20	Recent extensometric data for the monitoring of subsidence in Bologna (Italy)	<i>F. Bonsignore, G. Bitelli, A. Chahoud, P. Macini, E. Mesini, P. Severi, B. Villani, L. Vittuari</i>	
18h40	Land subsidence observation using GPS on the Kujukuri Plain	<i>D. Murai, M. Nakamura, S. Ikeda, F. Waki & N. Isezaki</i>	
19h20	<i>Departure to the Gala Dinner</i>		

Time	Friday 22th October	Authors	Technical Meeting
	Session 5: Social and economic impacts and their incorporation into resources management strategies	Chairman: L. Carbognin	GeoEXPO
08h20	KEYNOTE: Review of subsidence management in the Netherlands	<i>F. B. J. Barends</i>	
09h00	Land subsidence and environmental law in Mexico: a reflection on civil liability for environmental damage	<i>P. J. Gutiérrez-Yurrita</i>	
09h20	Considerations on strategies of sustainable management of oil and gas fields in Italy	<i>G. Brighenti, P. Macini & E. Mesini</i>	
09h40	Management of the environmental resources of the Kanto groundwater basin in Japan – land subsidence and monitoring system	<i>K. Furuno, A. Kagawa, O. Kazaoka, Y. Sakai, T. Kusuda & H. Nirei</i>	

10h00	The centenary of land subsidence monitoring in Shanghai	<i>Shi-Liang Gong</i>	GeoEXPO
10h20	How much subsidence is allowed: the introduction of the “effective subsidence capacity” concept in The Netherlands	<i>J. van Herk, H. Roest, I. Kroon, J. Breunese & H. De Waal</i>	
10h40	A warning system for exceeding subsidence limits	<i>M. Nepveu, I. C. Kroon & P. A. Fokker</i>	
11h00	BREAK		
11h20	Need to integrate land subsidence into the legal instruments of Mexico: Morelia, Michoacán case study	<i>L. L. Padilla-Gil, J. A. Ávila-Olivera, G. A. Huape-Padilla & M. E. Granados-García</i>	
11h40	Institutional controls in an area of subsidence induced flooding	<i>S. L. Baird</i>	
12h00	A fuzzy based-approach to building damage risk assessment	<i>A. Malinowska</i>	GeoEXPO
12h20	Environmental and social and economic effects derived from groundwater extraction, Tláhuac and Valle-de-Chalco-Solidaridad, metropolitan area of Mexico City	<i>A. Toscana, M.M Campos</i>	
12h40	Climate change impact and anthropogenic effects in land subsidence of Querétaro Valley, Mexico	<i>E. González-Sosa, N. R. Ramos-Salinas & C. A. Mastachi-Loza</i>	
13h00	Drought and climate related subsidence damage	<i>G. de Lange, J. Buma, H. van de Velde, J. Kopinga, R. Hanssen, B. Subroto</i>	
13h20	LUNCH (Restaurant Misión Juriquilla)		
14h20	POSTERS 14h20 -15h40		
	Session 6: Land Subsidence caused by subsurface fluids withdrawal	Chairman: D. Carreón	
15h40	Pumping effects on land subsidence in the Toluca Valley, Mexico	<i>A. I. Calderhead, R. Martel, J. Garfias, A. Rivera & R. Therrien</i>	(a.2 Hall CAC)
16h20	Integrated simulation of consumptive use and land subsidence in the Central Valley, California, for the past and for a future subject to urbanization and climate change	<i>R. T. Hanson, A. L. Flint, L. E. Flint, C. C. Faunt, Wolfgang Schmidt, M. D. Dettinger, S A. Leake & D.R. Cayan</i>	Scientific consultant's Presentations

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16h40	1-D infiltration, analysis of unsaturated flow and increase in land subsidence	<i>S. A. Masoudzade, M. M. Toufigh, H. Yazdani & R. Rahgozar</i>	
17h00	A theory of three-dimensional land motion in terms of its velocity field	<i>J. Li & D. C. Helm</i>	
17h20	<i>BREAK</i>		
17h40	Deformation characteristics of aquifer sands due to groundwater pumping in the Southern Yangtze Delta, China	<i>Y. Zhang, Y. Q. Xue, J. C. Wu & X. Q. Shi</i>	(a.2 Hall CAC) UNESCO Workgroup on Land Subsidence Meeting
18h00	Land-surface subsidence in the Houston-Galveston region, Texas, USA, 1915-2001	<i>M.J. Turco, R J., Neighbors, M.C. Kasmarek, T. Michel, M.R. Johnson,</i>	
18h20	Hazards of gases migrating over oilfields due to subsidence	<i>J. O. Robertson, Jr & G. V. Chilingar</i>	
18h40	Post-audit of land subsidence modelling of Saga-Shiroishi plain, Japan — lessons and improvements toward useful modelling	<i>K. Fujisaki</i>	
19h20	Closure Ceremony (Teatro Hall CAC)		

POSTER PRESENTATIONS

No.	Poster	Authors
	Session 1: Earth Fissures, Fracturing and Faulting Related to Land Subsidence	
S1.1	The application of Ground Penetrating Radar in the study of subsidence creep induced faults in Celaya	<i>N. Giordano, O. Díaz-Molina, E. Cabral, V. H. Garduño Monroy, V. M. Hernández Madrigal, A. Camargo Valencia</i>
S1.2	The impact of ground fissures on the construction of Xi'an metro, China	<i>L. Xin-sheng, M. Qing-sheng, W. Lu, W. Tong</i>
S1.3	Gravimetric Signature of earth-fissures due to pumping of groundwater in Aguascalientes Valley in Mexico	<i>J. Pacheco, S. I. Martínez, E. Zermeño</i>
S1.4	Geophysicists shallow studies for fracture configuration in the Aguascalientes Valley	<i>F.J. Aguilar, D.T. Reyes, & J.A. Fuentes</i>

	Session 2: Modelling Land Subsidence and Associated Hazard	
S2.1	Understanding land subsidence due to gas extraction with an advanced three-phase constitutive model	<i>M. Nuth Lyesse Laloui Bernhard A. Schrefler</i>
S2.2	Two-dimensional coupled numerical modelling of subsidence due to water extraction at the Lower Llobregat River, Spain	<i>A. Concha, J. Ripoll, J. Piña, A. Gabàs & P. Piña</i>
S2.3	Introduction of the JARAS/3D simulator for natural gas dissolved in water	<i>T. Nakagawa, Ikkou Suzuki, Manabu Nojo, Takeru Ogatsu & Tomoyuki Higuchi</i>
S2.4	Parameters estimation in surface subsidence modelling	<i>R. Hejmanowski</i>
S2.5	Coupling Modflow and Msettle to estimate land subsidence due to groundwater management	<i>M. Bakr & G. de Lange</i>
S2.6	Land subsidence modeling of the Reno river plain (Bologna, northern Italy)	<i>A. Chahoud, L. Gelati G. Patrizi & G. Zaccanti</i>
S2.7	A subsidence prediction model for Indian Coalmines	<i>P. P. Bahuguna</i>
S2.8	Modeling land subsidence of Mexico City	<i>G. Auvinet, M. Juárez, E. Méndez & D. Pérez</i>
	Session 3: Land Subsidence related to Geological and Geomechanical Processes	
S3.1	Analysis and monitoring of unusual settlements in antropogenic fill in Puerto Rico	<i>R. Ramos, O. Esquilin & M. Pando</i>
S3.2	Evaluation of the subsidence and risk of collapse in the Estació neighbourhood of Sallent City, Catalonia (Spain)	<i>F. López, P. Buxó, J. Palau, J. Marturià, A. Concha & P. Martínez</i>
S3.3	Geological and geophysical characterization of fracturing in granular deposits associated with land subsidence in San Luis Potosí City, Mexico	<i>L. D. Barajas-Nigoche, D. C. Carreón-Freyre, J. L. Mata-Segura, A. Rivera-León & F. Cafaggi-Félix</i>
S3.4	Evolution of Mexico City clay properties affected by land subsidence	<i>A. Jaime P. & E. Méndez- Sánchez</i>
S3.5	Conceptual model of land subsidence with a structural control	<i>J. A. Ávila-Olivera & V. H. Garduño-Monroy</i>
S3.6	Seismic basaltic structure under the local subsidence in San Lorenzo Tezonco, Iztapalapa, México, Distrito Federal	<i>L. Salazar, P. Vera & G. Guevara</i>

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S3.7	Geophysical and geotechnical studies applied to determine a subsidence problem in Pachuca de Soto, Hidalgo, Mexico	<i>L. A. Tapia, A. Tejero & R. Chávez</i>
S3.8	Land subsidence hazards zonation in La Libertad, Puebla, Mexico	<i>J. Castillo Roman</i>
S3.9	Subsidence and seismic risks of the Queretaro City, Mexico	<i>M. Arroyo-Contreras. C. Lopez-Cajon Carlos & M. Perez-Lara</i>
S3.10	Geological risk by sinking of the land in urban areas by soil mined in the Alvaro Obregon Delegation, Mexico City	<i>A. Alanis Alcantara.</i>
S3.11	Evaluation of collapse risks in tailing dams by fluid loss in a structure of Guanajuato, Mexico	<i>Y. R. Ramos-Arroyo, J. C. Martínez-Arredondo, M. Morales-Gómez, V. Manuel Ortega-Chávez</i>
S3.12	Analysis of the mechanism of sudden subsidence and invalidation of recharge	<i>Sh.-L. Shen, Ye-Shuang Xu, Huai-Na Wu, Jun-Feng Zhou</i>
S3.13	Discussion of the test of infiltration and consolidation under high-pressure	<i>D. Haitao, Liu Yuan, Tong Ji; P, Jianbing, Changan, S. Gangchen</i>
S3.14	Study on the physical model test of Xi'an land subsidence	<i>Dai Haitao, Liu Yuan, Tong Ji, Peng Jianbing, Sun Gangchen</i>
S3.15	Centrifuge modeling of land subsidence at different points among a group of high-rise buildings	<i>Zhen-Dong Cui, Xue-Xin Yan, Hang-Mei Wang</i>
S3.16	Analysis of ground failure due to land subsidence by finite element method applied to the Queretaro City	<i>O. Chávez, J. Arzate, E. Rojas</i>
S3.17	Active and passive seismic methods to estimate soil conditions beneath civil structures.	<i>Cardenas-Soto M., A. Reyes-Pimentel, T.A. Reyes-Pimentel and R. Martinez Carrada</i>
S3.18	Basin deformation analysis by dynamic friction and elasto-plastic modulus using surface wave technique	<i>A. Alvarez-Manilla-1,2, D. Carreón-Freyre & C. Mendoza</i>
S3.19	Influence of clay mineral phases into fracture formation.	<i>R. Diaz-Castellon, S. Solís Valdez, B. Millan-Malo, D. Carreón-Freyre, R Gutiérrez-Calderón</i>
Session 4: Monitoring Techniques of Ground Displacements and Subsurface deformation		
S4.1	Monitoring techniques for analysing subsidence: a basis for implementing an Early Warning System	<i>J. Marturia, J. Ripoll, A. Concha & M. Barberà</i>

S4.2	Comparing several GPS post-processing strategies for a potash basin monitoring network in northeast Spain: first results	<i>J. Gili, N. Lantada, A. Concha, X. Soler, C. Puig & J. Marturia</i>
S4.3	Analysis of landslide monitoring using an e-GPS system and multi-antenna GPS technology	<i>T. K. Yeh, Y. S. Hu & Y. A. Liou</i>
S4.4	Land subsidence monitored by satellite interferometry in Mexican cities	<i>J. A. Ávila-Olivera, P. Farina & V. H. Garduño-Monroy</i>
S4.5	Land subsidence monitoring with satellite-based and ground-based SAR imagery	<i>M. Crosetto, O. Monserrat, J. De Arriba, R. Iglesias, M. Ibarz</i>
S4.6	Land subsidence in Jakarta basin (Indonesia): characteristics, causes and impacts	<i>H. Z. Abidin, H. Andreas, I. Gumilar, M. Napitupulu, Y. Fukuda, J.J. Brinkman, T. Deguchi</i>
S4.7	Using persistent scatterers SAR Interferometry to monitor subsidence of the CRAF in Taiwan	<i>W.Ch Hung Y.A. Chen, Ch.P. Chang, J.Y. Yen, A. Hooper, Ch. Y. Yang</i>
S4.8	Land subsidence in Emilia-Romagna Region, northern Italy: recent results	<i>R. Bissoli, G. Bitelli, F. Bonsignore, A. Rapino, L. Vittuari</i>
S4.9	Analysis and monitoring of small surface deformation in urban areas using PSInSAR technique	<i>S. Magalhaes, B. Fruneau, B. Deffontaines, E. Ledoux, R. Cojean, A. Arnaud, J. Duro, A.M. Prunier-Leparmentier</i>
S4.10	<i>In situ</i> formation compaction monitoring in deep reservoirs by using optical fibres	<i>Shoji Kunisue & Tatsuo Kokubo</i>
S4.11	In situ compaction measurements via radioactive markers in the Northern Adriatic basin: an analysis of data precision over 15 years of monitoring	<i>C. Zoccatelli, F. Verdecchia, G. Cassiani, R. Deiana & N. Fraticelli</i>
S4.12	Recent information on Mexico City subsidence	<i>E. Mendes, G. Auvinet, M. Juarez & U. Matus</i>
	Session 5: Social and economic impacts and their incorporation into resources management strategies	
S5.1	Assessment of the state and condition of damaged buildings and structures affected by land subsidence	<i>J. A. Ortiz, F. A. Alonso, J. Pacheco, M. E. Zermeño, G. Araiza & E. Mendoza</i>
S5.2	Guidelines for the design of a unit of urban risk prevention for subsurface fracturing in the Municipality of Iztapalapa in Mexico City	<i>H. C. Carreón-Freyre & J. C. Rodríguez-Quiroz</i>

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S5.3	Shanghai land subsidence and its negative impact on urban flood prevention	<i>Shi-Liang Gong</i>
S5.4	Remedial and mitigation measures after surface mining operations	<i>C. Palencia, D. Goetz</i>
Session 6: Land Subsidence caused by subsurface fluids withdrawal		
S6.1	Subsidence faulting and aquifer vulnerability – their relation in Irapuato, Mexico	<i>A. Schroeder & R. Rodríguez</i>
S6.2	Axisymmetric motion of a confined leaky aquifer due to pumping groundwater from a partially penetrating well	<i>J. Li</i>
S6.3	Subsidence in Celaya, Guanajuato: morphologic evolution and relations with aquifer's dynamic	<i>N. Giordano, J. E. Diaz-Salmeron, V. M. Hernandez-Madrigal, V. H. Garduño-Monroy y A. Camargo-Valencia</i>
S6.4	Subsidence due to tunnel erosion (piping) in the recent Rio Mendoza alluvial fan, Argentina	<i>M. C. Regairaz, M. A, Gonzalez</i>

Saturday 23th and Sunday 24th October

TWO DAYS FIELDTRIPS

Mexico City (Guide: D. Carreón)

Visit to Mexico City subsidence and fracturing areas, the Center of Geological Risk Assessment (Centro de Evaluación de Riesgo Geológico, CERG) in Iztapalapa, the "Centro Histórico"; and the archeological zone of Teotihuacan outside of the city.

Guanajuato (Guide: J. Aranda)

Visit to the volcanic zone of Central Mexico to observe the fast sinking at the bottom of a recently desiccated crater-lake at Rincón de Parangueo, Guanajuato, and subsidence and fracturing areas in Morelia, Michoacán.