



Newsletter of the Unesco Land Subsidence International Initiative

Vol.39, July 2023

AGU Fall Meeting

in AGU Fall Meeting 2023 there will be a session specifically focused on land subsidence in coastal areas:

EP011 Coastal Land Subsidence: Quantifications, Projections, Impacts, and Countermeasures in Natural and Urbanized Coastal Environments

co-organized by several LaSII-members. A good opportunity to present your updates and meet again.

<https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fagu.confex.com%2Fagu%2Fm23%2Fprelim.cgi%2Fsession%2F190031&data=05%7C01%7CJohn.Lambert%40deltares.nl%7Ccf729ca860b74e52830408db8f4319a8%7C15f3fe0ed7124981bc7cfe949af215bb%7C0%7C0%7C638261290578535460%7CUnknown%7CTWFpbGZsb3d8eyJWlloiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6Ikh1aWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=CnpirRdOE53BNmgzXt0R1SDjx0DkYj1NsgovOVv6hPE%3D&reserved=0>

NEW LITERATURE

Bangladesh, Sundarbans mangrove forest

Kanan, A.H., Pirotti, F., Masiero, M. et al. Mapping inundation from sea level rise and its interaction with land cover in the Sundarbans mangrove forest. *Climatic Change* 176, 104 (2023).

<https://doi.org/10.1007/s10584-023-03574-5>

Belgium, East- and West Flanders

Joan Botey i Bassols, Pierre-Yves Declercq, Enric Vázquez-Suñé, Pierre Gerard,

PS-InSAR data, key to understanding and quantifying the hydromechanical processes underlying the compaction of aquifer systems. Case of West- and East-Flanders, Belgium,

Journal of Hydrology, 2023, 129980, ISSN 0022-1694,

<https://doi.org/10.1016/j.jhydrol.2023.129980>.

(<https://www.sciencedirect.com/science/article/pii/S0022169423009228>)

France

A new drought index fitted to clay shrinkage induced subsidence over France: benefits of interactive leaf area index

Sophie Barthélémy, Bertrand Bonan, Jean-Christophe Calvet, Gilles Grandjean, David Moncoulon, Dorothée Kapsambelis, and Séverine Bernardie

<https://doi.org/10.5194/egusphere-2023-1366>, 2023

<https://nhess.copernicus.org/>

Indonesia, Bandung

Gumilar, I., Sidiq, T.P., Virtriana, R. et al. Geodetic observations confirming land subsidence of Bandung Basin, Indonesia, and subsequent building damage. *Acta Geod Geophys* (2023).

<https://doi.org/10.1007/s40328-023-00417-8>

Indonesia, Java

Susilo, S., Salman, R., Hermawan, W. et al. GNSS land subsidence observations along the northern coastline of Java, Indonesia. *Sci Data* 10, 421 (2023). <https://doi.org/10.1038/s41597-023-02274-0>

Iran, Hamadan Province

Ghasemi, A., Bahmani, O., Akhavan, S. et al. Investigation of land-subsidence phenomenon and aquifer vulnerability using machine models and GIS technique. *Nat Hazards* (2023).

<https://doi.org/10.1007/s11069-023-06058-y>

PR China, Yellow River Delta

Yilin Liu et al.,

Multi-Source SAR-Based Surface Deformation Monitoring and Groundwater Relationship Analysis in the Yellow River Delta, China

<https://www.researchgate.net/publication/371913186> Multi-Source SAR-Based Surface Deformation Monitoring and Groundwater Relationship Analysis in the Yellow River Delta China

Taiwan

Ping-Yu Chang et al.,

Electrical resistivity imaging data for hydrogeological and geological hazard investigations in Taiwan

<https://www.researchgate.net/publication/372167653> Electrical resistivity imaging data for hydrogeological and geological hazard investigations in Taiwan

USA, New York

Manoochehr Shirzaei

Surface Deformation of New York City from Multitemporal Interferometric Analysis of Sentinel-1 SAR Datasets

<https://www.researchgate.net/publication/372683906> Surface Deformation of New York City from Multitemporal Interferometric Analysis of Sentinel-1 SAR Datasets

Guidelines

Australia

Submission on the draft Information Guidelines Explanatory Note: Subsidence Associated with Coal Seam Gas Production and the Draft National Minimum Groundwater Monitoring Guidelines

<https://www.edo.org.au/publication/submission-on-the-draft-information-guidelines-explanatory-note-subsidence-associated-with-coal-seam-gas-production-and-the-draft-national-minimum-groundwater-monitoring-guidelines/>

Mining

Bang Zhou et al.,

Dynamic Prediction Model for Progressive Surface Subsidence Based on MMF Time Function.

<https://www.mdpi.com/2076-3417/13/14/8066>

PR China, Ehuobulake Coal Mine

Shihang Zhou et al.,

Dynamic Monitoring and Analysis of Mining Land Subsidence in Multiple Coal Seams in the Ehuobulake Coal Mine Based on FLAC3D and SBAS-InSAR Technology

<https://www.mdpi.com/2076-3417/13/15/8804>

PR China, Sikeshu Coalfield

Zeming Tian et al.,

Monitoring Surface Subsidence Using Distributed Scatterer InSAR with an Improved Statistically Homogeneous Pixel Selection Method in Coalfield Fire Zones

<https://www.mdpi.com/2072-4292/15/14/3574>

PR China, Yangquan

Li, J.; Zang, M.; Xu, N.; Mei, G.; Yang, S. An InSAR-Based Method for Predicting Long-Term Land Subsidence in Goafs through the Concatenation of Multiple Short-Term Monitoring Data.

Preprints.org 2023, 2023071115. <https://doi.org/10.20944/preprints202307.1115.v1>

Monitoring

Singapore

Earth Observatory of Singapore to harness satellite technology to study land sinking



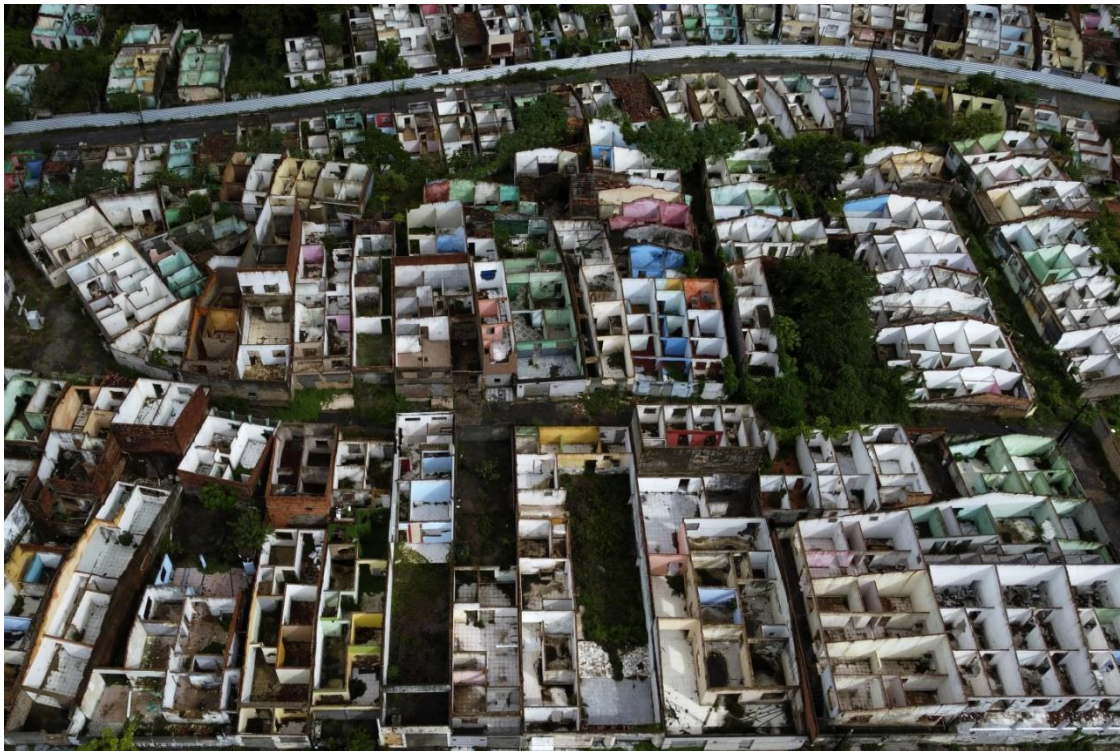
Earth Observatory of Singapore's new global navigation satellite system station

<https://www.straitstimes.com/singapore/environment/earth-observatory-of-singapore-to-harness-satellite-technology-to-study-land-sinking>

From the Press

Brazil, Maceio

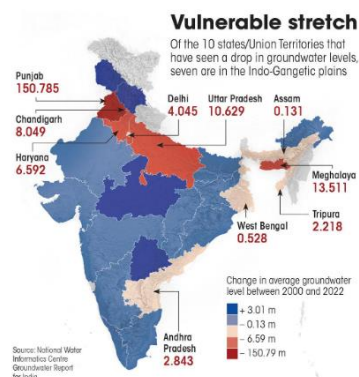
Brazilian petrochemical company settles with city where mining destroyed entire neighborhoods



<https://apnews.com/article/brazil-braskem-salt-mining-neighborhoods-befbc86ce6bc1ccdb88bb584a0466049>

India

GROUNDWATER EXPLOITATION LEADING TO LAND SUBSIDENCE



Indian cities with confirmed land subsidence incidents

Location	Observation period	Land subsidence rate
Surya Vihar, Kapashera, Delhi	2014-2020	10-17 cm/year
Raja Nahar Singh International Cricket Stadium, Faridabad	2014-2019	5-7 cm/year
Rayson, Gandhinagar	2009-2016	0.52 cm/year
Landon, Mahali	2005-2018	4-7.5 cm/year
Calcutta University, Kolkata	1992-1998	0.5-0.65 cm/year

Source: Research studies

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<https://www.iasgyan.in/daily-current-affairs/groundwater-exploitation-leading-to-land-subsidence>

Indonesia, Jakarta

An impressive description and series of pictures of Jakarta's sinking:

<https://www.yoppy-pieter.com/work/dyingcapital>



Indonesia, Timbuloko

'We can't do anything': See the village where homes are permanently surrounded by water'

<https://www.euronews.com/green/2023/07/25/we-cant-do-anything-see-the-village-where-homes-are-permanently-surrounded-by-water>