



## Newsletter of the Unesco Land Subsidence International Initiative Vol.53, October 2024

Please, send your comments and suggestions to [John.Lambert@deltares.nl](mailto:John.Lambert@deltares.nl)

### Expert Meeting

### Expert Group Meeting on Asia-Pacific's Sinking Cities

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📅 **28 November 2024, 09:00 - 12:00 Indochina Time / Bangkok** | **By invitation only**

📍 **United Nations Conference Centre and Zoom, Bangkok, Thailand** 
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OVERVIEW	DOCUMENTS	INFORMATION NOTE
<p><b>Background:</b> Cities and coastal communities across Asia-Pacific face growing risks from climate change, rapid urbanization, and land subsidence, exacerbated by extensive groundwater extraction, loss of natural buffers like wetlands, and tectonic activity. With major cities such as Jakarta, Bangkok, and Manila and secondary cities like Semarang sinking faster than sea levels are rising, millions of residents and trillions of dollars in assets are under increasing threat.</p> <p>In November 2023, ESCAP and UN-Habitat convened the first Expert Group Meeting (EGM) on sinking cities in the Asia-Pacific region. This gathering of experts and urban practitioners highlighted significant challenges, including limited collaboration, a lack of regional platforms for addressing land subsidence, and gaps in policy and funding for sustainable urban solutions. Recognizing land subsidence as a "hidden issue," the EGM underscored the importance of raising awareness and coordinating action across scales.</p> <p>ESCAP and UN-Habitat will bring experts and cities together again in 2024 to deepen the discussion on regional strategies, share best practices, and identify technical and policy actions needed to mitigate subsidence risks. This convening will emphasize the urgent need for integrated planning to protect urban areas from the combined impacts of subsidence and climate change, aiming to bring this "silent crisis" into regional focus through actionable recommendations and greater regional cooperation.</p> <p><b>Objective:</b></p> <p>The Expert Group Meeting is being organised to provide a better understanding of the key issues of land subsidence in the region's sinking cities, provide a platform for exchange among cities facing similar challenges, and share best practices for governance strategies and to establish action points for strengthened regional collaboration.</p>		

**FOR MORE INFORMATION, PLEASE CONTACT**

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<https://www.unescap.org/events/2024/expert-group-meeting-asia-pacifics-sinking-cities>

## Special Issue Remote Sensing

[https://www.mdpi.com/journal/remotesensing/special\\_issues/4602862P3G](https://www.mdpi.com/journal/remotesensing/special_issues/4602862P3G)

Assessing Natural Hazards through Advanced Machine Learning Methods and Remote Sensing Technology: 3rd Edition

Potential topics of interest include, but are not limited to, the following:

Regional or global case studies concerning natural risk phenomena prediction and Assessment;

Software development and implementation of machine learning, optimization, deep learning techniques, and meta-heuristic algorithms;

Monitoring, mapping, and assessing earthquakes, landslides, floods, wildfires, soil erosion, and land subsidence;

Evaluating losses and damages following earthquakes, floods, landslides, wildfires, soil erosion, and land subsidence.

This Special Issue, titled “Assessing Natural Hazards through Advanced Machine Learning Methods and Remote Sensing Technology: 3rd Edition”, seeks to advance the field by integrating innovative techniques and fostering a deeper understanding of natural hazards through explainable AI and other cutting-edge technologies.

**Deadline: 31 December 2024**

## New Literature

### **General**

Motagh, M., Garg, S., Cigna, F., Teatini, P., Bhardwaj, A., Matin, M. A., Zarei, A., & Madani, K. (2024). Sustainability Nexus AID: landslides and land subsidence. Sustainability Nexus Forum, 32, Article 1. <https://doi.org/10.1007/s00550-024-00549-7>

Nicoletta Nappo et al.,

Applicability and effectiveness of structural measures for subsidence(risk) reduction in urban areas

[https://www.researchgate.net/publication/384584650\\_Applicability\\_and\\_effectiveness\\_of\\_structural\\_measures\\_for\\_subsidence\\_risk\\_reduction\\_in\\_urban\\_areas](https://www.researchgate.net/publication/384584650_Applicability_and_effectiveness_of_structural_measures_for_subsidence_risk_reduction_in_urban_areas)

### **Brazil**

Thyago Anthony Soares Lima et al.,

Subsidência e Colapso no Brasil: Uma Revisão Abrangente

[https://www.researchgate.net/publication/385040187\\_Subsidencia\\_e\\_Colapso\\_no\\_Brasil\\_Uma\\_Revisao\\_Abrangente/references](https://www.researchgate.net/publication/385040187_Subsidencia_e_Colapso_no_Brasil_Uma_Revisao_Abrangente/references)

### **India, Krishna Delta**

Reshma, K.N., Murali, R.M., Kumar, S.S. et al. Spatial Variability of Ground Deformation of Coastal Regions of the Krishna Delta, East Coast of India Using SAR Interferometry. J Indian Soc Remote Sens (2024). <https://doi.org/10.1007/s12524-024-02026-6>

### **Indonesia, Jakarta**

A R Zini and D Danardono

Analysis Of Land Subsidence Rates In DKI JAKARTA In 2018, 2020 And 2022 With The DINSAR Method

<https://iopscience.iop.org/article/10.1088/1755-1315/1357/1/012005>

### **Indonesia, Timbulloko**

M Karmilah et al.,

Coping Strategies to Address Water Scarcity through Local Knowledge in Tidal Flood and Erosion-Prone Areas: A Case Study of Timbulloko, Sayung Regency, Demak Municipality

<https://iopscience.iop.org/article/10.1088/1755-1315/1321/1/012005>

### **Iran, Tehran Plain**

Khalili M. A. et al.,

Spatiotemporal characterization of the subsidence and change detection in Tehran plain (Iran) using InSAR observations and Landsat 8 satellite imagery

<https://www.iris.unina.it/handle/11588/978823>

Jessica Payne et al.,

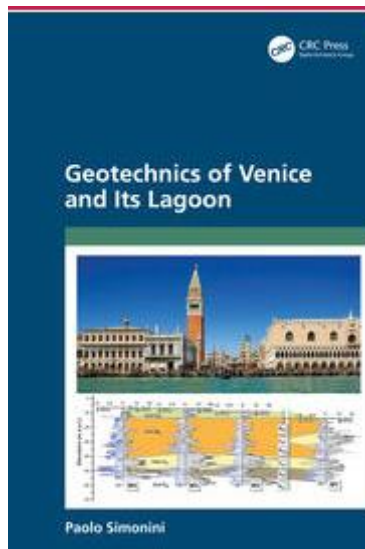
Widespread extent of irrecoverable aquifer depletion revealed by country-wide analysis of land surface subsidence hazard in Iran, 2014–2022, using two component Sentinel-1 InSAR time series

[https://www.researchgate.net/publication/384465183\\_Widespread\\_extent\\_of\\_irrecoverable\\_aquifer\\_depletion\\_revealed\\_by\\_country-wide\\_analysis\\_of\\_land\\_surface\\_subsidence\\_hazard\\_in\\_Iran\\_2014-2022\\_using\\_two\\_component\\_Sentinel-1\\_InSAR\\_time\\_series/references](https://www.researchgate.net/publication/384465183_Widespread_extent_of_irrecoverable_aquifer_depletion_revealed_by_country-wide_analysis_of_land_surface_subsidence_hazard_in_Iran_2014-2022_using_two_component_Sentinel-1_InSAR_time_series/references)

### ***Italy, Po Plain***

Farías, Celina Anael, Michelle Lenardón Sánchez, Roberta Bonì, and Francesca Cigna. 2024. "Statistical and Independent Component Analysis of Sentinel-1 InSAR Time Series to Assess Land Subsidence Trends" Remote Sensing 16, no. 21: 4066. <https://doi.org/10.3390/rs16214066>

### ***Italy, Venice***



[https://www.routledge.com/Geotechnics-of-Venice-and-Its-Lagoon/Simonini/p/book/9781032049588?srsltid=AfmBOopJc6lnPfoUbmYKthtaA\\_1Hu0bD4R8dcY4WvVTIOJaU-zGI3f78](https://www.routledge.com/Geotechnics-of-Venice-and-Its-Lagoon/Simonini/p/book/9781032049588?srsltid=AfmBOopJc6lnPfoUbmYKthtaA_1Hu0bD4R8dcY4WvVTIOJaU-zGI3f78)

### ***Korea, Japan***

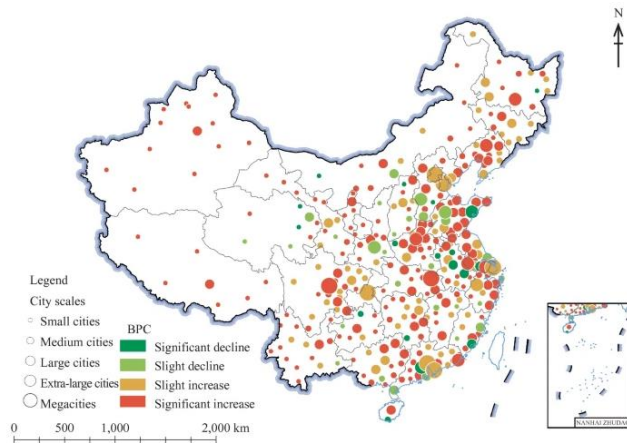
Alberto Boretti,

Sea level patterns around Korea and Japan

<https://www.sciencedirect.com/science/article/abs/pii/S2352485524003530>

### ***PR China***

Guo, H. (2024). SDG 11 Sustainable Cities and Communities. In: Big Earth Data in Support of the Sustainable Development Goals (2022) - China. Sustainable Development Goals Series. Springer, Singapore. [https://doi.org/10.1007/978-981-97-4231-8\\_5](https://doi.org/10.1007/978-981-97-4231-8_5)



Spatiotemporal evolution of BPC in cities at the prefecture level in China from 2015 to 2020.  
Note No data for Taiwan Province

### ***PR China***

Xue, YA., Zou, YF., Li, HY. et al. Regional subsidence monitoring and prediction along high-speed railways based on PS-InSAR and LSTM. Sci Rep 14, 24622 (2024). <https://doi.org/10.1038/s41598-024-76485-9>

### ***PR China, Beijing***

Shao-Min Liu et al.,

Groundwater level rise and geological structure influences on land deformation dynamics: insights from managed aquifer recharge operations in Beijing, China

[https://www.researchgate.net/publication/384840759\\_Groundwater\\_level\\_rise\\_and\\_geological\\_structure\\_influences\\_on\\_land\\_deformation\\_dynamics\\_insights\\_from\\_managed\\_aquifer\\_recharge\\_operations\\_in\\_Beijing\\_China](https://www.researchgate.net/publication/384840759_Groundwater_level_rise_and_geological_structure_influences_on_land_deformation_dynamics_insights_from_managed_aquifer_recharge_operations_in_Beijing_China)

### ***PR China North China Plain***

Zhou Wu et al.,

Wide-Area Interferometry Over Sparse GnsS Scenarios: Towards Subsidence Risk Analysis in the North China Plain

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4992616](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4992616)

***PR China, Wuwei***

Huang Jiale et al.,

Temporal and spatial characteristics of ground subsidence in Wuwei City based on PS-InSAR technology

<http://en.dzcx.org/article/doi/10.12017/dzcx.2024.040>

***Thailand, Bangkok***

Jenny Soonthornrangsarn et al.,

Linked Data-Driven, Physics-Based Modeling of Pumping-Induced Subsidence with Application to Bangkok, Thailand

[https://www.researchgate.net/publication/384840051\\_Linked\\_Data-Driven\\_Physics-Based\\_Modeling\\_of\\_Pumping-Induced\\_Subsidence\\_with\\_Application\\_to\\_Bangkok\\_Thailand/references](https://www.researchgate.net/publication/384840051_Linked_Data-Driven_Physics-Based_Modeling_of_Pumping-Induced_Subsidence_with_Application_to_Bangkok_Thailand/references)

***USA, California***

M. S. Zebker et al.,

A Robust Method for Selecting a High-Quality Interferogram Subset in InSAR Surface Deformation Analysis

<https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2024GL111339>

***USA, Mid-Atlantic***

Christopher A. Scott,

Land subsidence in the Mid-Atlantic United States: Creeping disaster threatens water, energy, and climate security,

<https://www.sciencedirect.com/science/article/abs/pii/S2468312424000191>

## Mining

***Pakistan, Lakhra***

Tariq Ashraf et al.,

Land Subsidence Detection Using SBAS- and Stacking-InSAR with Zonal Statistics and Topographic Correlations in Lakhra Coal Mines, Pakistan

<https://www.mdpi.com/2072-4292/16/20/3815>

## From the Press

### ***Indonesia, Java***

Prabowo's sea wall plan 'not the cure' for Indonesia's land subsidence issues, experts say

<https://www.scmp.com/week-asia/health-environment/article/3282651/prabowos-sea-wall-plan-not-cure-indonesias-land-subsidence-issues-experts-say>