United Nations Educational, Scientific and Cultural Organization

Intergovernmental Hydrological Programme

UNESCO Land Subsidence International Initiative

Newsletter of the Unesco Land Subsidence International Initiative

Vol.6 September 2020

New: Working Group of Land Subsidence in Indonesia

Central Java, the Government recently formed a 2020 *Land Subsidence* Working Group (Pokja) to deal with land subsidence in Indonesia. In order to formulate the right program for the 2020 *Land Subsidence* Pokja team , a team consisting of the central government, local government, academics, and NGOs visited areas affected by land subsidence in Semarang and Pekalongan on Thursday (10-9-2020).

Read more: https://maritim.go.id/rumuskan-program-kerja-pokja-land-subsidence-pemerintah-telusuri/

New: Subsidence Map of the Netherlands 2.0

https://bodemdalingskaart.portal.skygeo.com/portal/bodemdalingskaart/u1/viewers/basic/

Put your cursor on a location of the map and you will get a graph showing the observed subsidence since 2016.

Launching a new Chinese satellite

The satellite will be launched late 2020. Information about the new satellite can be found here:

https://space.skyrocket.de/doc_sdat/hy-3a.htm

New Literature

General, INSAR

From my experience as a hydrologist, I am not able to have an opinion about this article, but it might be helpful:

Using Tellus to Determine Land Subsidence via InSAR Analysis [Code Included]

https://sorabatake.jp/en/13944/

General, Flooding

Ngo, H., Ranasinghe, R., Zevenbergen, C., Kirezci, E., Maheng, D., Radhakrishnan, M., and Pathirana, A.: An efficient modelling approach for probabilistic assessments of present-day and future fluvial flooding, Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2020-242, in review, 2020.

https://nhess.copernicus.org/preprints/nhess-2020-242/

Europe, rewetting peatlands

Liu, H., Wrage-Mönnig, N. & Lennartz, B. Rewetting strategies to reduce nitrous oxide emissions from European peatlands. *Commun Earth Environ* **1,** 17 (2020). https://doi.org/10.1038/s43247-020-00017-2

India, Mizoram

Groundwater depletion survey report:

https://phed.mizoram.gov.in/uploads/attachments/38c04e2a8086ebfd804222145124a187/report-gwdpl-2020.pdf

Indonesia, Semarang

Subsidence in Semarang is about 0,10 m/yr.

Widada S, Zainuri M, Yulianto G, Satriadi A, Wijaya YJ. Estimation of Land Subsidence Using Sentinel Image Analysis and Its Relation to Subsurface Lithology Based on Resistivity Data in the Coastal Area of Semarang City, Indonesia. Journal of Ecological Engineering. 2020.

http://www.jeeng.net/Estimation-of-Land-Subsidence-Using-Sentinel-Image-Analysis-and-Its-Relation-to-Subsurface,127394,0,2.html

Indonesia, Tanjung Api-Api

Spatial analysis of land subsidence potential due to lowland conversion (case study at Tanjung Api-Api) Andriani1 , E Ibrahim2 , D D A Putranto2 , A K Affandy2 and H G Putra1

https://iopscience.iop.org/article/10.1088/1757-899X/933/1/012054/pdf

Italy, Como Basin

Nicoletta Nappa et al.,

Regression Analysis of Subsidence in the Como Basin (Northern Italy): New Insights on Natural and Anthropic Drivers from InSAR Data

https://www.mdpi.com/2072-4292/12/18/2931/pdf

Italy, Florence

Fabio Pratesi et al.,
In: GEOLOGY ENGINEERING

Mapping interactions between geology, subsurface resource exploitation and urban development in transforming cities using InSAR Persistent Scatterers: Two decades of change in Florence, Italy

http://geologyengineering.com/2020/09/mapping/

Japan, Hakone Vulcano

Doke, R.; Kikugawa, G.; Itadera, K. Very Local Subsidence Near the Hot Spring Region in Hakone Volcano, Japan, Inferred from InSAR Time Series Analysis of ALOS/PALSAR Data. *Remote Sens.* **2020**, *12*, 2842.

https://www.mdpi.com/2072-4292/12/17/2842

Japan, Kanto

Kawano, Kenjiro, et al. "Effect of brine injection into shallow formation on land subsidence in the Southern Kanto gas field, in Japan." *Proceedings of the International Association of Hydrological Sciences*, vol. 382, 2020, p. 303. *Gale Academic OneFile*, Accessed 27 Sept. 2020.

https://go.gale.com/ps/anonymous?id=GALE%7CA621638856&sid=googleScholar&v=2.1&it=r&linkaccess=fulltext&issn=01447815&p=AONE&sw=w

Poland

Estimation of Organic Soils Subsidence in the Vicinity of Hydraulic Structures-Case Study of a Subirrigation System in Central Poland

Andrzej Brandyk, Ryszard Oleszczuk, Janusz Urbański
J. Ecol. Eng. 2020; 21(8):64–74

http://www.jeeng.net/Issue-8-2020,8481

Poland

Received from our member Agnieszka:

We are pleased to inform you that "Assessment of the Impact of the Spatial Extent of Land Subsidence and Aquifer System Drainage Induced by Underground Mining" by Artur Guzy *, Agnieszka A. Malinowska has been published in Sustainability as part of the Special Issue Contributions of Geological Research to Sustainability and is available online:

Abstract:
https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.mdpi.com%2F2071-1050%2F12%2F19%2F7871&data=02%7C01%7C%7C58fd3caae97041f576f208d85fb75877%7C15f3fe0ed7124981bc7cfe949af215bb%7C0%7C0%7C637364588350150323&sdata=AgFPPzxKa%2Fmd1w9Q9OGdH2AtgmAD0071%2ByHUMlpg26I%3D&reserved=0
HTML Version:
https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.mdpi.com%2F2071-1050%2F12%2F19%2F7871%2Fhtm&data=02%7C01%7C%7C58fd3caae97041f576f208d85fb75877%7C15f3fe0ed7124981bc7cfe949af215bb%7C0%7C0%7C637364588350150323&sdata=pgpubjwaB7ViNV57xWEmUPvD5uR4%2FEEz%2F5S5o%2FG70K8%3D&reserved=0
PDF Version:
https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.mdpi.com%2F2071-1050%2F12%2F19%2F7871%2Fpdf&data=02%7C01%7C%7C58fd3caae97041f576f208d85fb75877%7C15f3fe0ed7124981bc7cfe949af215bb%7C0%7C0%7C637364588350150323&sdata=VfKPba0IlYN49H86k8ZVI%2FjOXtnkxFK2HjPzhcsPqoo%3D&reserved=0

PR China, Beijing

Li, F.; Gong, H.; Chen, B.; Zhou, C.; Guo, L. Analysis of the Contribution Rate of the Influencing Factors to Land Subsidence in the Eastern Beijing Plain, China Based on Extremely Randomized Trees (ERT) Method. *Remote Sens.* **2020**, *12*, 2963.

https://www.mdpi.com/2072-4292/12/18/2963

Thailand, Bangkok

Saowiang, K., Giao, P.H. Numerical analysis of subsurface deformation induced by groundwater level changes in the Bangkok aquifer system. *Acta Geotech.* (2020). https://doi.org/10.1007/s11440-020-01075-8

https://link.springer.com/article/10.1007/s11440-020-01075-8#citeas

USA, California, Coachella Valley

2020, Scientific Investigations Report 2020-5093: Michelle Sneed, Justin T. Brandt

Detection and Measurement of Land Subsidence and Uplift Using Global Positioning System Surveys and Interferometric Synthetic Aperture Radar, Coachella Valley, California, 2010–17

https://pubs.er.usgs.gov/publication/sir20205093

USA, California

Rapid drought-induced land subsidence and its impact on the California aqueduct

Remote Sensing of Environment (IF 9.085) **Pub Date : 2020-09-12** ,

DOI: 10.1016/j.rse.2020.112063

Megan M. Miller; Cathleen E. Jones; Simran S. Sangha; David P. Bekaert

From the Press

Iran, Isfahan

https://www.en.eghtesadonline.com/Section-energy-70/33350-underground-water-extraction-pushing-isfahan-over-the-edge

Indonesia, Jakarta

Government vows to continue coastal, port infrastructure development

This article was published in thejakartapost.com with the title "Government vows to continue coastal, port infrastructure development". Click to read: https://www.thejakartapost.com/news/2020/09/30/government-vows-to-continue-coastal-port-infrastructure-development.html.

Iran, Tehran

Water Demand in Tehran Intensifies

https://www.en.eghtesadonline.com/Section-energy-70/33611-water-demand-in-tehran-intensifies

The article reports 0.31 m/yr land subsidence in Tehran Province

the Netherlands

It's sink or swim for farmers if soil subsidence isn't curbed: report

https://www.dutchnews.nl/news/2020/09/its-sink-or-swim-for-farmers-if-soil-subsidence-isnt-curbed-report/

Philippines, Dagupan

In Dagupan, subsidence rates of more than 0.04 m/yr are ereported

https://mb.com.ph/2020/09/14/beyond-manila-bay-sand-extraction-endangers-billions-of-people/

United States, California

The governor of California refuses to grant a budget to restore the capacity of the Friant-Kern Canal

https://www.gov.ca.gov/wp-content/uploads/2020/09/SB-559.pdf

OFFICE OF THE GOVERNOR

SEP 28 2020

To the Members of the California State Senate:

I am returning Senate Bill 559 without my signature.

This bill requires the Department of Water Resources (DWR) to report to the Legislature on federal funding approved to restore the capacity of the Friant-Kern Canal, with a proposal for the state to pay for a share of the project.

California's major canal systems are aging and damaged by land subsidence. Local, state and federal systems all need repair. As established in the Water Resilience Portfolio, state agencies are holistically assessing the needs of all of California's water supply systems. This bill focuses on a single piece of conveyance and directs DWR to develop a proposal for the state to help fund this specific project. As we address California's water needs in the coming months and years, we need to evaluate, develop and identify solutions and funding that provides water supply and conveyance for the entirety of the state, not one project at a time.

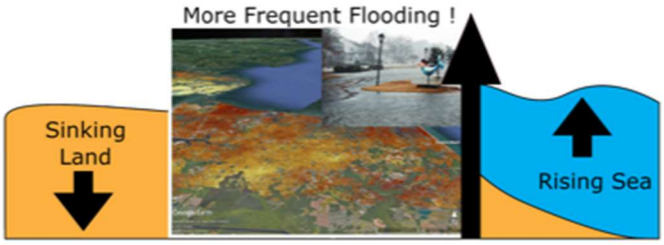
Sincerely,

Gavin Newsom

United States, Virginia, Hampton Roads

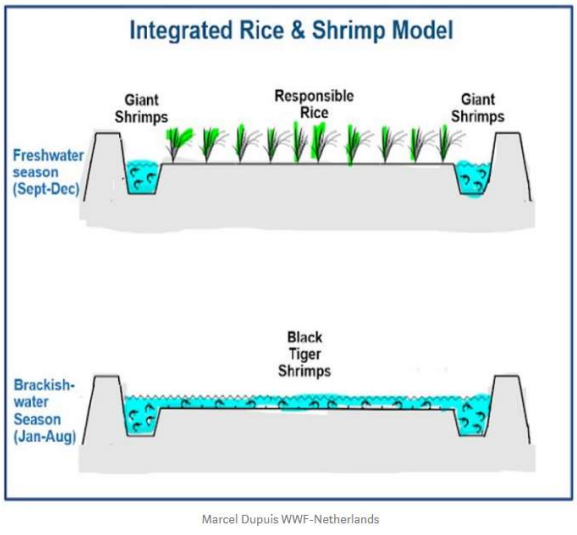
New Study Provides Insight – from Space – Into Sinking Land in Hampton Roads

https://www.odu.edu/news/2020/9/subsidence_strategie



Vietnam, Mekong Delta Rice Project

Bankable Nature Solutions: a Case Study



https://medium.com/wwfhk-e/bankable-nature-solutions-a-case-study-ed2dc21f434c

---

Comments and contributions can be sent to: john.lambert@deltares.nl