



Newsletter of the Unesco Land Subsidence International Initiative

Vol.3 June 2020

AGENDA

On **July 13th** a webinar is organized by the EU project RESERVOIR. Roberto is one of the managers of this project, contributions e.g. from Pablo Ezquerro.

https://drive.google.com/file/d/1_ZC7eIRT_k9-4tFAozU9qiEU6PkhvERG/view

Access to the webinar is free. You can send an e-mail to: c.guardiola@igme.es

The contributions will be in Spanish. Here follows the agenda:

El programa del webinar es el siguiente:

11:00 h. Presentación del proyecto. Roberto Tomás Jover, Universidad de Alicante.

11:10 h. El acuífero del Alto Guadalentín. Concepción Pla Bru, Universidad de Alicante.

11:20 h. Gestión de los recursos hídricos subterráneos del acuífero Alto Guadalentín. José Manzano Cerón Jefe de Área de Gestión del Dominio Público Hidráulico.

11:30 h. Subsistencia del terreno en el valle del Alto Guadalentín. Roberto Tomás Jover, Universidad de Alicante.

12:40 h. Monitorización del Alto Guadalentín. Pablo Ezquerro Martín, Instituto Geológico y Minero de España.

12:50 h. Modelo MODFLOW del Alto Guadalentín. Pablo Ezquerro Martín, Instituto Geológico y Minero de España.

13:00 h. Aplicación de los modelos para la mejora de la gestión. Carolina Guardiola Albert, Instituto Geológico y Minero de España.

13:10 h. Participación en el proyecto RESERVOIR. Carolina Guardiola Albert, Instituto Geológico y Minero de España.

13:20 h. Mesa redonda. Moderador: Javier Valdés Abellán, Universidad de Alicante.

La inscripción es gratuita previo registro a través del siguiente e-mail: c.guardiola@igme.es

Special Issue TISOLS 2020

The Dutch Journal Geotechniek (GeoTechnics) published a special issue on Land Subsidence. This issue was planned to be linked with TISOLS. You will have access and download this issue by:

https://issuu.com/uitgeverijeducom/docs/geotechniek.landsubsidence_special_2020

Our Observer, Gilles, contributed to one of the articles.

Jaargang 24, 2020 - Special Land Subsidence 2020

- Asselen, S. van, Erkens G. (2020): Monitoring shallow subsidence in cultivated peatlands. Geotechniek 2020, Special Land Subsidence, p.8.
- Kok, S., Costa, A.L., Korff, M. (2020): Methodology for systematic assessment of damage to buildings due to groundwater lowering-induced subsidence in The Netherlands. Geotechniek 2020, Special Land Subsidence, p.12.
- Koning, M. de, Buuren, R.R. van, Haasnoot, J.K. (2020): Use of monitoring data for dike strengthening project KIJK. Geotechniek 2020, Special Land Subsidence, p. 16.
- Kooijman, W. (2020): Climate-proof planning. Solution for preventing the immense cost of subsidence damage to dwellings and infrastructure. Geotechniek 2020, Special Land Subsidence, p.18.
- Koster, K., Stafleu, J., Maijers, D., Meulen, M.J. van der (2020): Geotop: a standard in 3D land subsidence studies in The Netherlands. Geotechniek 2020, Special Land Subsidence, p. 5.

New Literature

Indonesia

In: Nature Geoscience:

Alison M. Hoyt e.a., Widespread subsidence and carbon emissions across Southeast Asian peatlands

<https://www.nature.com/articles/s41561-020-0575-4>

This article was also mentioned in the press, and following link gives access to a video about this subject.

<http://news.mit.edu/2020/peatland-drainage-southeast-asia-climate-change-0604>

About geotechnical characteristics and road damage:

<https://iopscience.iop.org/article/10.1088/1742-6596/1500/1/012078>

Poland

From our member Agnieszka in Remote sensing:

Agnieszka A. Malinowska et al., Satelliet-Based monitoring and modeling of ground movements caused by water Rebound.

<https://www.mdpi.com/2072-4292/12/11/1786>

PR China

Chaobai Plain

Pietro contributed to:

L. Zhu, A. Franceschini, H. Gong, M. Ferronato, Z. Dai, Y. Ke, Y. Pan, X. Li, R. Wang and P. Teatini, The 3-D Facies and Geomechanical Modeling of Land Subsidence in the Chaobai Plain, Beijing, Water Resources Research, 54, doi: 10.1029/2019WR027026, 2020.

In this paper they combined for the first time a 3D facies model with a 3D groundwater flow and geomechanical model. The approach is applied to the Beijing plain. The methodology is computationally demanding but allows to quantify the uncertainty in land subsidence prediction related to uncertain distribution of different lithologies

Heze

Our observer Mahdi has contributed to following paper:

Zhu, C., Wu, W., Motagh, M., Zhang, L., Jiang, Z., and Long, S.: Assessments of land subsidence along Rizhao-Lankao High-speed Railway at Heze, China between 2015 and 2019 with Sentinel-1 data, Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-176>, in review, 2020.

Pearl River Delta

In: Earth, Planets and Space (in Review)

Genger Li et al., Surface Deformation Evolution in the Pearl River Delta Between 2006 and 2011 Estimated from the ALOS1/PALSAR

<https://www.researchsquare.com/article/rs-32256/v1>

Ulanqab

Interesting to see an article about an alternative technique that causes land subsidence and requires also an alternative approach:

In: Combustion Science and Technology:

Huaizhan Li et al., Evaluation Method of Surface Subsidence Degree for Underground Coal Gasification without Shaft.

<https://www.tandfonline.com/doi/abs/10.1080/00102202.2020.1776706?journalCode=gcst20>

Sudan

In: Remote Sensing:

Nureldin A.A. Gido et al., Satellite Monitoring of mass changes and ground subsidence in Sudan's oil fields using GRACE and Sentinel-1 data.

USA

California

A link to a report that gives an overview of the backgrounds of the California water plans:

<https://www.ppic.org/wp-content/uploads/water-and-the-future-of-the-san-joaquin-valley-overview.pdf>

With a map showing subsidence in San Joaquin River Basin from 2012 – 2016:

Quinn, Nigel. (2020). Policy Innovation and Governance for Irrigation Sustainability in the Arid, Saline San Joaquin River Basin. Sustainability. 12. 4733. 10.3390/su12114733.

https://www.researchgate.net/publication/342092792_Policy_Innovation_and_Governance_for_Irrigation_Sustainability_in_the_Arid_Saline_San_Joaquin_River_Basin

West Coast

From: Advancing Earth and Science:

R.G. Smith and al., Groundwater storage loss associated with Land Subsidence in Western US Mapped Using Machine Learning.

<https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019WR026621?af=R>

General

The Climate and Ocean Risk Vulnerability Index PRIORITIZING AREAS OF ACTION FOR COASTAL CITIES
By Jack Stuart, Sally Yozell, and Tracy Rouleau June

https://www.stimson.org/wp-content/uploads/2020/05/Stimson_CORVIRreport_FullReport_120520.pdf

Pietro contributed to following:

A. Melet, P. Teatini, G. Le Cozzanet, C. Jamet, A. Conversi, J. Benveniste and R. Almar, Earth observations for monitoring marine coastal hazards and their drivers, Surveys in Geophysics, doi: 10.1007/s10712-020-09594-5, 2020.

This is the outcome of a collaboration with researchers mainly focused on marine processes: land subsidence can be a main driver for marine coastal hazards

From the Press

Great Britain

Wimslow

<http://www.wimslow.co.uk/news/article/20425/readers-letter-continuing-problems-on-the-peat-bog>

Indonesia

<https://www.thejakartapost.com/news/2020/06/02/djuanda-project-to-provide-access-to-clean-water-in-greater-jakarta.html>

UNOPS

Unops asks attention for the Indonesian peatlands:

<https://www.unops.org/news-and-stories/stories/restoring-indonesian-peatlands-protecting-our-planet>

Iran

<https://www.en.eghtesadonline.com/Section-energy-70/32640-plains-running-out-of-fossil-water>



A child stands in a fish storage box at a flooded area affected by land subsidence and rising sea level in North Jakarta, June 5, 2020. REUTERS/Ajeng Dinar Ulfiana

PR China

Hongkong

Damage to buildings in Hongkong as a result of civil engineering activities

<https://www.scmp.com/yp/discover/news/hong-kong/article/3054435/no-need-worry-about-sinking-ground-around-mtrs-kwa-wan>



USA

Fresno, California

<https://www.fresnobee.com/opinion/op-ed/article243461031.html>

Vietnam

Vietnam news reports:

Nguyễn Hoàng Hiệp, Deputy Minister of Agriculture and Rural Development, talks to the Government's website *chinhphu.vn* on the need to develop plans to reduce the negative impacts of drought, salinity and land subsidence in the Mekong Delta

<https://vietnamnews.vn/environment/738500/mekong-delta-adapts-to-saline-intrusion.html>

Projects

On the Unesco website, attention is paid to the project in which several of our members and observers collaborate:

MONITORING LAND SUBSIDENCE IN COASTAL CITIES



Countries: China, Egypt, Italy, Netherlands and Indonesia.

Objective: Climate change and related sea-level rise pose unique challenges to densely populated cities that may be exacerbated by outdated urban infrastructures. Our international team of researchers is studying the geophysical and hydro meteorological hazards affecting low lying cities, in order to control and prevent land subsidence.

Examples of study sites are Alexandria, Dhaka, Jakarta, Shanghai and Venice.

http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/IGGP_Booklet_final_June_2020.pdf

Thesis

University Utrecht: Dissertation

- **Saputra, E. *Land subsidence as a sleeping disaster. Case studies from Indonesia.***

Erlis Saputra studied following research questions for Jakarta, Semarang (Central Java) and Riau (peat oxidation) : Are authorities aware of land subsidence? Which are the proposed solutions? Are these solutions feasible?

