Newsletter of the Unesco Land Subsidence International Initiative

Vol.1 April 2020

Dear UNESCO LaSII-members and observers

Because the Corona (COVID-19) crisis, the Land Subsidence International Initiative's 5-yearly International Symposium had to be postponed, as well as the annual meeting of the Initiative. The new data for TISOLS are **May 17th – May 21st , 2021.** The intention is to have the same programme as was originally prepared. The organizing committee will start preparations in September 2020 and keep everyone informed about it. In the meantime proceedings of TISOLS have already been made available: https://www.proc-iahs.net/382/index.html.

In the meantime, we hope to be able to organize an annual meeting of LaSII in November. You will be informed about it separately. Until now, it is uncertain whether this will be possible or not. Maybe it's a good idea to stay in touch with each other by means of a newsletter. The intention is to make a periodic (let's say monthly) of activities, literature, news, projects etc. all in relation to our mission as a member of the Unesco IHP-family.

As a matter of fact, this will only work with the contributions of all of us, let's have a try.

Here is Newsletter no.1

All contributions, remarks and comments are very welcome.

NEWS from LaSII

As mentioned: TISOLS has been postponed until May 17th – May 21st, 2021

In the meantime, Michelle and Shujun have finished the LaSII flyer. At this moment only available in English and Spanish (translation by Roberto).

Planned activities of the LaSII:

Publish a guidebook on land subsidence

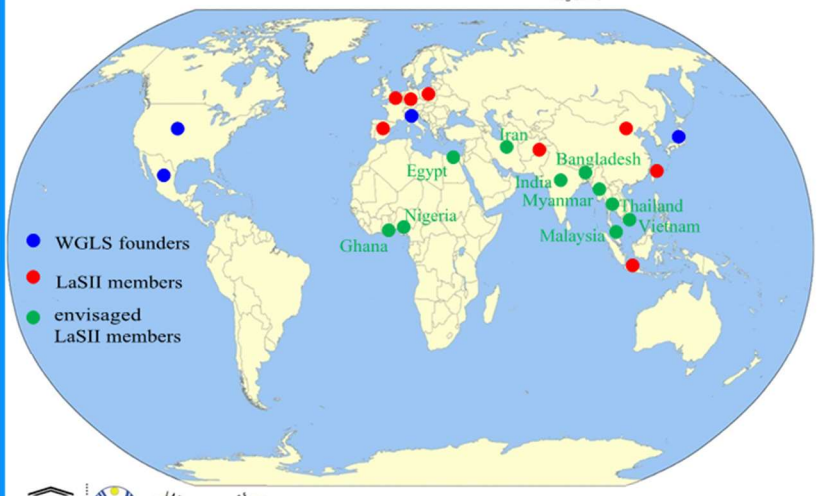
Convene annual LaSII meetings

Organize, sponsor and convene international symposia on land subsidence about every 5 years

Establish a growing number of collaborations with local, state and national subsidence-interest groups

Administer our social media platforms and website http://www.landsubsidence-unesco.org/

United Nations Educational, Scientific and Cultural Organization · International Hydrological Programme · UNESCO Land Subsidence International Initiative



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UNESCO Land Subsidence International Initiative (LaSII)

About the LaSII

The UNESCO Land Subsidence International Initiative (formerly the Working Group on Land Subsidence-WGLS) is one of the oldest working groups within the International Hydrological Programme (IHP), initiating activities during the 1965-1974 International Hydrological Decade (IHD).

The LaSII enhances the scientific understanding and technical knowledge required to identify and characterize hazards related to natural and anthropogenic land-level lowering.

LaSII promotes and facilitates the international exchange of information regarding the design, implementation and evaluation of risk assessments and mitigation measures, and the definition of resource-management strategies that support sustainable development in areas vulnerable to land-level lowering.

Main Objectives

- Propose effective methodologies for land subsidence identification
- Raise awareness of sustainable exploitation of groundwater
- Build capacity and expand educational opportunities
- Facilitate participation of IHP Focal Points and National Committees in the development of case studies and the dissemination of LS mitigation guidelines
- Strengthen linkages with other IHP Programs
- Favor financial support from external sources

Members

The LaSII has members and observers from 13 countries/regions: China, Germany, Egypt, Indonesia, Italy, Japan, Mexico, the Netherlands, Pakistan, Poland, Spain, Taiwan, United States

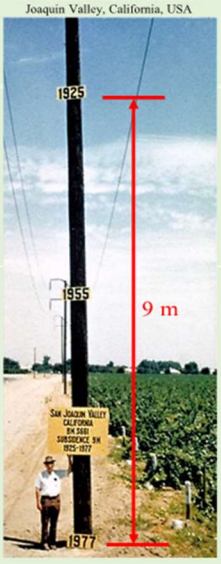
Expertise

The members and observers of the LaSII have expertise in applied mathematics, engineering geology, geodesy, physical geography, geology, geomechanics, hydrogeology, numerical modeling, remote sensing, stratigraphy, among other subjects.

Mexico City sinks, and its structures twist and deform

"Acqua alta" in San Marco Square, Venice, Italy

Father of Land Subsidence, Joseph F. Poland, illustrating severe land subsidence in the San Joaquin Valley, California, USA



New Literature

References are given to the publications on internet. Not all these publications are available as full text.

P.R.China, Beijing

From Conference: BIGSARDATA2019:

Wei Duan et al. Land Subsidence Monitoring for Beijing-Tianjin-Hebei Region using Sentinel-1

The full paper is only accessible after login.

https://ieeexplore.ieee.org/document/8858482

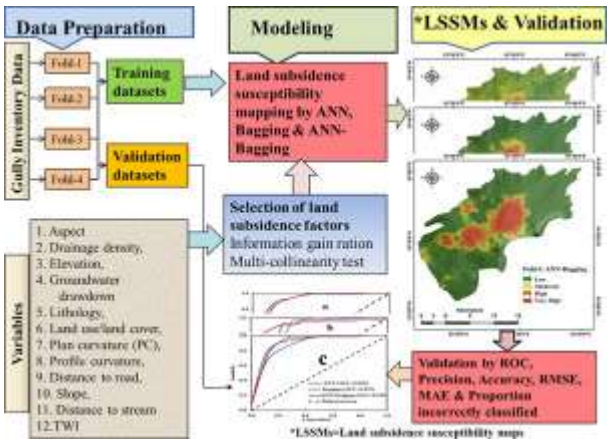
Iran, Semnan Plain

Science of the Total Environment, vol.726, 15 july 2020, 138595

Alarezi Alamberi et al., A novel ensemble computational intelligence approach for the spatial prediction of land subsidence susceptibility.

https://www.sciencedirect.com/science/article/pii/S0048969720321112

Here the graphical abstract.



Spain, Madrid

Following paper is available in full text; main author is our member Roberto, with co-authors our members Gerardo and Pietro (and others).

Proceedings of the International Association of Hydrological Sciences 2020

Roberto Tomas et al., Wavelet analysis of land subsidence time-series. Madrid Tertiairy aquifer case study.

http://rua.ua.es/dspace/handle/10045/106009

United States of America

Arizona

A presentation as a webinar from Brian Conway. The presentation takes about 15 minutes.

This is the second presentation in the webinar, Mapping Displacement and Subsidence with Time-series Radar. In this webinar, experts from Hexagon and the Arizona Department of Water Resources will discuss the use of time-series displacement maps with a high point density for monitoring and mitigating subsidence due to subsurface extraction of resources such as water or hydrocarbons. Our speakers are: Derrold Holcomb, Product Manager, Advanced Sensor Software, Hexagon Geospatial Brian Conway, Geophysics Unit Supervisor, Arizona Department of Water Resources This webinar is co-sponsored by the American Association of Geographers, American Geophysical Union, American Institute of Professional Geologists, and the Geological Society of America. For more information: www.americangeosciences.org/webinars

https://www.youtube.com/watch?v=x9njQKgm388

Southwest USA

Journal of Hydrology, Vol.587, August 2020

Chandrakanta Ohja et al., Recovery of aquifer systems in Southwest US following 2012-2015 drought: Evidence from InSAR, GRACE and groundwater level data.

https://www.sciencedirect.com/science/article/pii/S0022169420304030

California

Proc. IAH 382, 837-842, 2020

Steven Deverel et al., Solutions for subsidence in the California Delta, USA, an extreme example of organic-soil drainage gone awry.

https://www.proc-iahs.net/382/837/2020/

From the Press

United States of America

California

Lindsay Cummings reports on recent drought in California:

https://www.siskiyoudaily.com/news/20200426/county-once-again-faces-severe-drought

Indonesia

Forum Bintoro

Community Forum Bintoro calls for safeguarding mangroves and land subsidence problems in Demak and Semarang, Indonesia (youtube)

https://www.youtube.com/watch?v=_TF25nSCwNs

Drowning Land by Aji Styawan

Indonesia is one of the largest archipelago nations in the world, with more than 17,000 islands. The majority of the small islands are only a metre above sea level. Deforestation, land reclamation and groundwater extraction make these areas even more vulnerable to rising sea levels.

January 2020 - Sayung subdistrict, Demak, Central Java, Indonesia. Aerial photo of the villages in northern coast of Sayung subdistrict in Demak Regency, surrounded by water due to rising sea levels. Not only has the coastline been eroding through the process of erosion, but land subsidence of around 10 centimeters a year make this area extra vulnerable to climate change. Demak used to be surrounded by fertile land. As the sea approached closer, a development that started around 1995, agricultural land gradually became fish ponds, to the point where now the land is fully submerged by all sea. The villagers, once farmers, became fishermen. (The Guardian/Aji Styawan/Getty Images Climate Visuals Grant Recipient)

Jakarta

https://news.mongabay.com/2020/04/a-watery-onslaught-from-sea-sky-and-land-in-the-worlds-fastest-sinking-city/

Phillipines

Sitio Pariahan

A youtube film showing land subsidence problems in Sitio Pariahan. Villagers attend Sunday mass in a flooded church, while all roads have vanished underwater.

https://www.channelnewsasia.com/news/cnainsider/living-in-a-village-that-s-sinking-into-the-sea-12665628

Projects

Aqueduct Floods

A new flood risk tool, developed by Utrecht University and Deltares to support cost-benefit analysis .

https://www.uu.nl/en/news/new-tool-shows-investment-in-flood-protection-helps-millions-of-people-at-risk

See also:

https://www.wri.org/news/2020/04/release-new-data-shows-millions-people-trillions-property-risk-flooding-infrastructure

Vacancy in Southeast Asia, Myanmar

Resilient Asian Deltas (RAD) Initiative Lead, Apply before May 24, 2020

https://wwf.panda.org/jobs_wwf/?362331/Resilient-Asian-Deltas-RAD-Initiative-Lead

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