

*“ASREN is a non-profit company with limited liability (GmbH) and is officially registered in Germany, under the umbrella of the League of Arab States. The main goal is to connect Arab institutions among themselves and to the globe through high-speed data-communications networks. Such networks will enable sharing and access to a variety of R&E services and applications in addition to utilization of highly sophisticated and technologically advanced computing resources available only at very few institutions in the world.”*

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## e-AGE19 Conference - Groundbreaking Research and Education Networks



ASREN

**e-AGE19**

“GROUNDBREAKING  
RESEARCH & EDUCATION  
NETWORKS”

Abu Dhabi, UAE  
12-11 December 2019

The graphic features the ASREN logo (two overlapping hexagons, one blue, one orange) and a photograph of a modern city skyline at dusk, with a large white arrow pointing right over the image.

The e-AGE conference had established itself as an important venue for networking among experts and scientists. In 2019, e-AGE will be held at Khalifa University in Abu Dhabi, UAE during 11 - 12 December 2019. This year the focus will be on demonstrated successes in using research

and education e-Infrastructures and a need for interoperable high speed networks at national, regional and international levels. In short words, e-AGE19 is coming with “GROUNDBREAKING RESEARCH AND EDUCATION NETWORKS” as the main theme of the conference.

e-AGE19 will include events, workshops and meetings centered around the following:

- e-AGE Annual Conference
- The 12<sup>th</sup> Event on Euro-Mediterranean e-Infrastructure
- The 9<sup>th</sup> annual shareholders meeting of ASREN
- EUMEDCONNECT3 Project meeting
- AfricaConnect2 Project meeting
- Internet2 Middle East SIG Meetings
- Workshops dedicated for e-Infrastructure users

Moreover, special sessions will be dedicated to specific domains, mainly focusing on experiences in connectivity and e-Infrastructure, applications and services across a variety of scientific domains. It is also important to show how research infrastructure creates tangible benefits to communities and collaborations. It is still critical to demonstrate how research connectivity can promote collaboration and innovation. Different discussions will be stimulated during e-AGE to drive outcomes and concrete results on practical steps towards developing a regional e-Infrastructure.

Authors are invited to submit full papers

reporting on their original and unpublished research in e-Infrastructures and computational and data-intensive sciences. All papers will be peer-reviewed for relevance, quality and originality of research.

Posters are also welcomed, featuring a poster at e-AGE will serve as an excellent advertisement for your work, and can act as a great conversation starter with e-AGE participants.

**Topics of interest include, but not limited to:**

- Scientific computing and data-intensive e-Science in areas related to energy, environment, health, climate, water, agriculture, biology, economy, medicine, as well as in social sciences and humanities.
- Perspectives on NRENs, including challenges, operation, sustainability, funding, governance, business models, security and services.
- Problem-solving environments, Virtual Research Environments, Science Gateways and collaborative tools, applications and services.
- Education and e-Learning Technologies, access to educational resources, repositories, libraries and contents, cloud, grids, parallel and distributed computing, and high performance computing.
- Internet technologies and trends, Internet of Things, Security, SDN and AAI.
- Artificial Intelligence tools, deep learning, big data, and open science platforms.

For more details, please visit the conference website at: <http://asrenorg.net/eage19/>

## Final Report on LIBSENSE III Workshop in Tunisia



The 3<sup>rd</sup> LIBSENSE workshop took place in Tunis, Tunisia. The workshop was organized by ASREN, the Arab States Research and Education Network, in conjunction with WACREN, COAR and EIFL.

The LIBSENSE initiative is a collaboration between the three African Regional Research and Education Networks (RRENs) and the AfricaConnect2 project. It aims to build a community of practice for repositories in Africa and define a collaborative agenda for libraries and RRENs in Africa related open science, repositories and value-added services. COAR, EIFL, and OpenAIRE have also been providing support and expertise to the LIBSENSE project. The workshop in Tunisia was attended by representatives from the National Research and Education Networks (NRENs) and library/university communities from several Arab countries: Egypt, Iraq, Jordan, Qatar, Morocco, Syria, and Tunisia, with other participants from Nigeria and Senegal. As with the previous two workshops, the aim was to identify opportunities and activities to collaborate across the two

communities to support open science in the region.

This highly interactive workshop provided an opportunity for participants to discuss their challenges related to open access and share solutions being applied locally. The ASREN countries are very diverse and there is no universal solution for all countries in the region, however, several valuable shared priorities surfaced during the workshop:

- 1. A federated discovery system for the region:** A significant amount of research and educational content is produced in the region, but the content is scattered across many systems and countries. A federated discovery system, similar to LA Referencia in Latin America, would bridge access across repositories and other content providers from the region enabling a one-stop search interface. While there are already several national portals and discovery systems, the region would benefit from federating across countries, given the common language and geographic location of the countries. To support this, content needs to be exposed in a

common way, leading to greater alignment and harmonization of standards, technologies and policies at the local level, and ensuring best practices are applied to the organizations that wish to share their content through the portal.

**2. Increasing the value of Arabic content:** Related to the issue above, participants discussed collective strategies to add value to the Arabic language content produced in the region. Improving the visibility and discoverability of Arabic language will require the adoption of standards and best practices by data providers including clear copyright statements, the proper use of DOIs, metadata in English to support discovery, quality control for digitized materials, and so on. ASREN could act as a mechanism for institutions in the region to work together to support the identification and sharing of best practices and even possibly a collective approach to shared curation of metadata and content.

**3. Shared content hosting platform:** Not every institution has the resources and expertise to manage its own repository. At the national level NRENs, or other national institutions can offer repository hosting services to fill in the gaps and ensure that all valuable content produced in the region is made openly available and preserved for the long term. These types of hosting services could also be extended beyond literature repositories to include data repositories and journal platforms, and help advance innovation in scholarly communication by supporting, for example, launching overlay journals on top of the regional content. This would allow cost

sharing across institutions, leading significantly lower costs for participating in open science activities.

**4. Advocacy, training, and communities of practice:** A cluster of activities related to the social/cultural aspects of open access and open science can also be supported through collaborative activities. As with many regions, the traditional paradigms related to promotion and prestige of the researcher are strong in these countries, leading researchers to prefer publishing in traditional, established publishing venues. The narrative that incorrectly equates open access with low-quality journals acts as a strong disincentive for researchers to publish in open access and these misunderstandings need to be addressed through advocacy with researchers and administrators. In addition, regional collaboration provides an opportunity to support communities of practice, beyond just “one-off” training events for a variety of activities such as federated identity management for libraries, open source software management (DSpace and OJS), as well as sharing and adopting good practices and standards across a range of other services.

The next step for LIBSENSE project will be for countries and regions to develop more concrete plans for addressing and advancing the priorities areas identified through the workshops.

The workshop program and presentations are available at the following link:

<http://asrenorg.net/?q=content/libsense-iii-workshop-agenda>



## Monitoring dust storms to give asthma sufferers a breather

What starts as a tiny grain of sand may quickly turn into something enormous. Dust storms are a common meteorological phenomenon in arid regions across the globe, where strong winds, blowing over loose soil or sand, can suddenly create a rolling wall of dust material, blanketing cities or even an entire region.

### A spectacle with hazards

Powerful winds recently drove sand from the Sahara Desert across the Mediterranean Sea as far as the ski slopes in Sochi, Russia, turning skies red and leaving behind orange-frosted snow.

Such a spectacle can, however, have widespread (and deadly) effects: in September 2015, a massive dust storm swept across the Middle East, sending thousands of people to hospital with breathing problems and leaving at least eight dead. In June 2014, the Iranian capital Tehran was hit by a 150 km/h dust wall, killing five and injuring dozens in a mass motorway pile-up due to the heavily compromised visibility.

Besides wreaking havoc on land and air transportation, dust storms are notorious for getting sand into just about every nook and cranny of everything, corroding machinery and buildings; dust deposits increase soil erosion, reduce crop yields by burying seedlings and clog up irrigation canals.

In addition to potentially causing injury and death through falling trees or debris or through

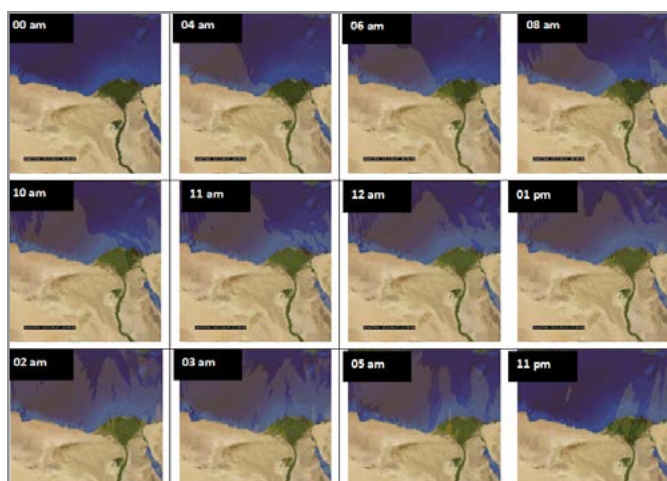
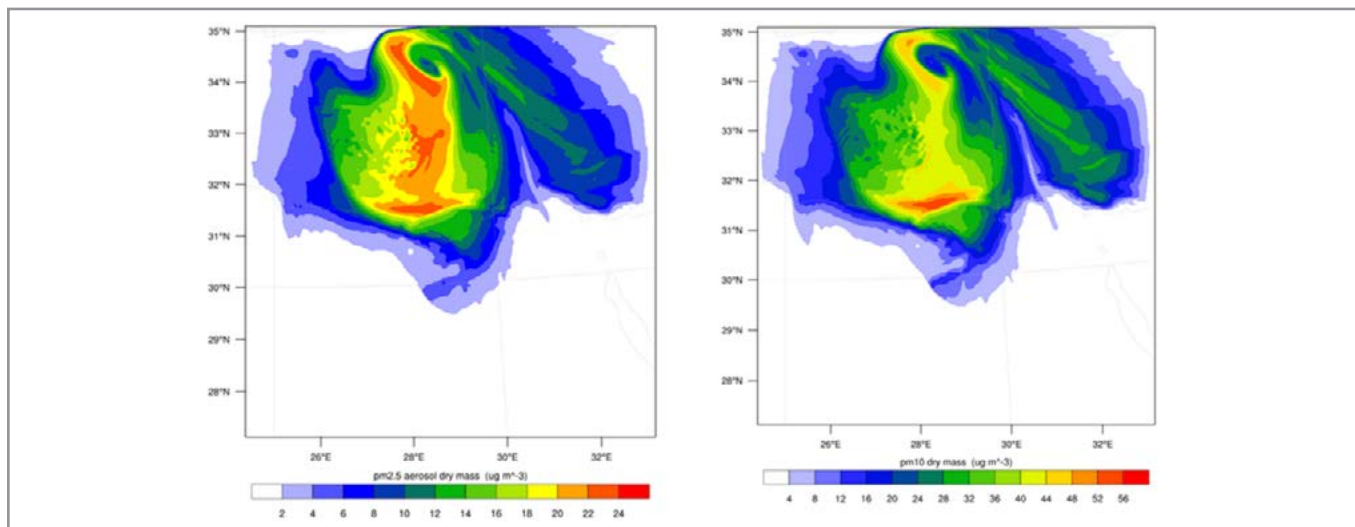


chain-reaction crashes, dust storms are carrying a more dangerous load than meets the eye: the suspended particles can contain toxic chemicals and transmit infectious diseases. If small enough, they can slip past a body's natural defenses – nose hairs, for example – to infiltrate and damage one's respiratory system, triggering a spike in asthma attacks and also leading to previously undiagnosed sufferers developing the condition.

### Impact mitigation through monitoring

The impact of such storms can be mitigated by monitoring them to issue early warnings and taking appropriate measures. This calls for a better understanding of the conditions that are prone to initiate huge dust storms.

Satellite instruments, particularly the Moderate Resolution Imaging Spectroradiometer (MODIS), have revolutionised the scientific community's ability to understand the spatial extent, pathways and the source area of dust storms. Coupling satellite images with WRF (Weather Research and Forecasting) modelling



provides a tool for more accurate forecasting. A reliable internet connectivity set-up to access, download and transfer data from satellite-borne sensors and terrestrial meteorological stations is key to the success of this time-critical activity.

### **NARSS: at the forefront of storm monitoring in Egypt**

Egypt lies within a broad band of dust-producing terrain that extends from north-western Africa eastward to Mongolia – and gets frequently hit by dust storms.

The National Authority for Remote Sensing and Space Sciences (NARSS) is the pioneering

Egyptian institution in the field of satellite remote sensing and plays a vital role in predicting dust and sandstorms by observing and simulating how they are formed over space and time.

Dr. Islam Abou El-Magd heads the Environmental Studies Department at NARSS.

“A focus of our research is to monitor particle pollution, or particulate matter (PM), associated with dust storms. When breathed in, PM can cause several health problems, which include asthma, rhinosinusitis, chronic obstructive pulmonary diseases and respiratory tract infections. And it is the finer, micrometre-sized particles – 2.5 – 10  $\mu\text{m}$  – that are the most dangerous ones in that respect. Analysing their spatial and temporal distribution helps us evaluate their health impact and establish an early warning system to alert the risk-prone population, in particular children, the elderly and those with predisposed respiratory and cardiovascular disease”.

Generated through the WRF model, the below NARSS images show the concentration of PM 2.5  $\mu\text{m}$  and 10  $\mu\text{m}$  at 5pm on 7 April 2013, respectively. Whilst their distribution is similar,

the density of the finer and more harmful particles (PM 2.5  $\mu\text{m}$ ) is much higher.

Combining WRF-based air quality modelling with MODIS satellite images allows to analyse the spatial and temporal PM distribution over the same day.

This, in turn, enables Dr El-Magd and his team to support the authorities in issuing timely alerts and for people to take appropriate measures to avoid being exposed to the devastating effects of an incoming dust storm.

### **Reliable connectivity is key**

The essential internet power for this data-intensive and time-critical endeavour is provided through NARSS's connection to the Egyptian National Scientific & Technical Information Network (ENSTINET), Egypt's scientific NREN.

Egypt is a partner in the EU-funded AfricaConnect2 project which aims to develop high-capacity internet networks for research and education across Africa. The African Earth Observation community is set to benefit from this dedicated connectivity, particularly in the context of the AfriGEOSS initiative; developed within the GEO framework, AfriGEOSS will strengthen the link between the current GEO activities with existing capabilities and initiatives in Africa and will provide the necessary framework for countries and organisations to access and leverage on-going bilateral and multilateral EO-based initiatives across Africa, thereby creating synergies and minimizing duplication for the benefit of the entire continent.

Source:

<https://www.inthefieldstories.net/monitoring-monitoring-dust-storms-to-give-asthma-sufferers-a-breather/>

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