REGIONAL LEADERS SUMMIT

RLS-Sciences

15-16 September, 2020

RLS-Sciences at the RLS Virtual Symposium on COVID-19

A. Overview

Within the framework of the chairmanship of the "Regional Leaders' Summit", Upper Austria invited the partner regions and the RLS-Sciences Network to a virtual symposium on 15-16 September, 2020. The symposium was an international exchange between politics and science, discussing best practices, challenges, and exit strategies for combatting the COVID-19 pandemic. A new Digital Health Initiative was launched with the aim of expanding the scientific network and conducting interdisciplinary research.

B. Virtual Round Table

Representatives from all seven regions, including from the political, scientific, and administrative levels, came together virtually for the RLS Virtual Round Table on COVID-19 on 15 September. The international scientific cooperation in the RLS-Sciences network is an effective means of advancing science and politics the regional level, and the Virtual Round Table offered an important opportunity for exchange between the political and scientific levels of RLS-Sciences.

The Virtual Round Table included statements from the RLS regions. Here, we see the statement from Western Cape Premier Alan Winde. Seated at the table from left to right are Nora Mack (Biz Up Upper Austria), Upper Austrian Governor Thomas Stelzer, and Dr. Sebastian Goers (RLS-Sciences president). Photo Credit: Land Oberösterreich

The RLS-Sciences session of the Virtual Round Table, moderated by Dr. Sebastian Goers and Dr. Florence Gauzy, included a presentation and question-and-answer from the four RLS-Sciences groups. Each group (Energy Network, Global Aerospace Campus, Small Satellites, and Expert Dialogue on Digitalization) presented challenges, best practices, opportunities, and exit strategies for addressing the COVID-19 pandemic, from the perspective of their fields.

The overarching results were:

- The economic recovery can be shaped in line with the goals of the energy transition;
- The progress of digitalization can contribute to maintaining industries in times of difficulty (aviation as the example);
- Observing the course of a pandemic from space with the aid of pico-satellites can provide secure images of important events that would otherwise be difficult or only possible with high personal risk;
- The forced digitalization of working methods in the COVID-19 crisis offers only limited and unequal chances for the design of tomorrow's working world as long as consistent investments in a robust digital infrastructure and its protection against cyber attacks are missing.

RLS-Sciences works with a unique multilateral and cooperative approach to the collection, processing and provision of relevant and verified data in the fields of energy transition, aeronautics, space and digitalization in a regional context, the results and benefits of which were demonstrated during the Virtual Round Table. The RLS-Sciences network aims to work closely with RLS governments and to contribute to providing decision support during and after the COVID-19 pandemic.

a. Energy Network

On behalf of the Energy Network, RLS-Sciences president Dr. Sebastian Goers presented, "*Approaches for navigating the RLS regions' energy transitions during and after the COVID-19 crisis*". In the seven RLS partner regions, energy transitions based on the expansion of renewable energies combined with the development of energy storage facilities, the increase in energy efficiency and the implementation of energy saving measures are ongoing. By integrating these into a comprehensive strategy for economic recovery during and after the COVID-19 recession, energy transition measures can contribute in the short, medium and long term to overcoming the economic collapse, creating urgently needed jobs and achieving or further strengthening

Dr. Sebastian Goers moderated the RLS-Sciences session of the Virtual Round Table with Dr. Florence Gauzy. Within the session, he presented the Energy Network. Photo Credit: Land Oberösterreich

prosperity and resilience. Through the interdisciplinary and multi-regional cooperation in the RLS-Energy Network on energy system transformation, strategies for the simultaneous creation of economic and ecological dividends during and after the COVID-19 crisis are being derived for the political decision makers of the partner regions.

b. Global Aerospace Campus

Lead scientist for the Global Aerospace Campus (GAC), Prof. Klaus Drechsler, offered insights into the developments of online education in the aerospace sector during the pandemic with the presentation, "*Global Aerospace Campus: Connecting Regions Through Education*". The GAC is an international digital training, networking and research platform that connects the aerospace research of the RLS partner regions. Qualified scientific personnel or experts from industry prepare aerospace-relevant content for a worldwide online audience under the common GAC label. In the context of the COVID-19 crisis, the need for innovative online education offerings led to a significant increase in the number of users on the digital GAC platform and in registrations for the first online course "Digitalization in Aerospace". In response to the geographic distance and temporary closure of higher education institutions, GAC further developed the online course offering, and the first online course was published as a Massive Open Online Course (MOOC) in September 2020. The next course, "Urban Air Mobility" is under development with inputs from across the RLS regions. The group plans for their fourth summit to be held mid-June, 2021, with the topic, "Space for Earth: Mastering Cyber & Public Security with Space Technologies".
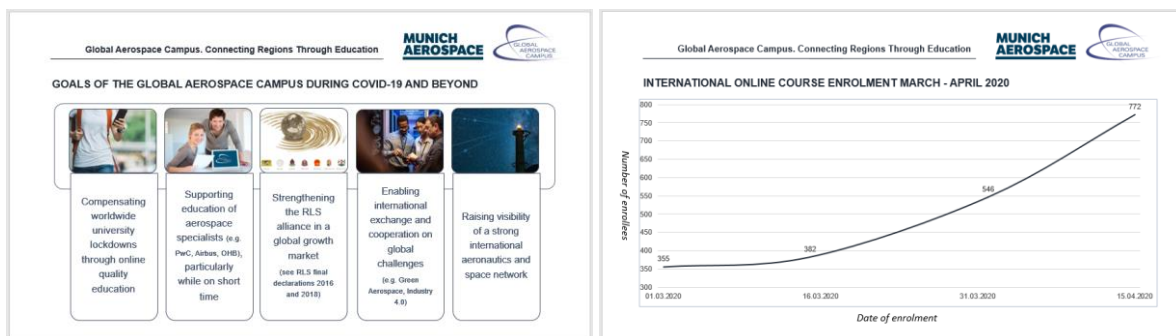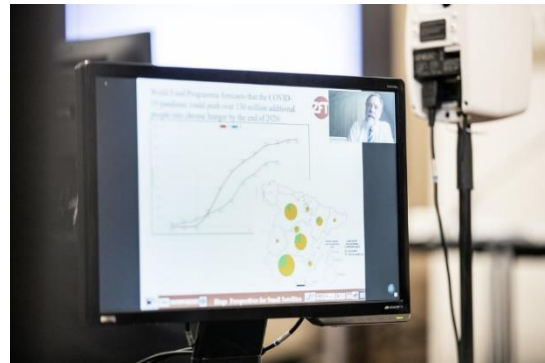

Prof. Klaus Drechsler (Munich Aerospace e.V. and Technical University of Munich) showed the impressive increase in enrollments to the first eLearning course over the past months, as well as the next steps the GAC group is working on.

c. Small Satellites

Presented by lead scientist Prof. Klaus Schilling, the Small Satellites group presentation, "*Earth Observation with CubeSats in Times of COVID-19: Perspectives from the Telematics International Mission (TIM)*" demonstrated how during the COVID-19 pandemic, satellite images reliably provided information on precise areas and movement patterns - even where access was difficult and dangerous. With the microsatellites, the RLS regions in cooperation have given themselves a valuable instrument of high technology, which is only now showing its full potential. With an intelligent formation of small satellites for telecommunications and earth observation, the project demonstrates the technological leadership of the RLS regions in new space research. The research group is working on a

Prof. Klaus Schilling (Centre for Telematiks and the University of Würzburg) showed examples of the role satellites played in tracking the pandemic globally. (Photo Credit: Land Oberösterreich)

powerful formation of pico-satellites in orbit, using the expertise on pico-satellites, space communication (navigation, guidance, control), miniaturization and mechatronics available in the RLS regions. Satellites proved useful for gathering information worldwide on the exact spread of the COVID-19 pandemic and the measures taken in response (e.g. barriers, isolation, border controls), which were reflected in the movements of persons or vehicles on-site. These examples demonstrate that Earth observation can depict concrete changes in social action and thus serve as a basis for political reactions. Small satellites can be used in many ways. The exploration of these possibilities is a key discussion point for the regions.

d. Expert Dialogue on Digitalization

For the Expert Dialogue on Digitalization group, Prof. Thierry Karsenti presented "*Working and Learning from Home in a Digital Era*". The corona crisis has suddenly led to further digitalization of work processes in order to avoid direct contacts and further contagion. The group developed their comparison of which fundamental questions of social justice (access, provision, education), business infrastructure (existence of an ICT and cyber security industry), social affiliation and legal framework conditions are facing regional governments. After six months, the effects of the pandemic-related home office are becoming apparent. Initial surveys and studies show the effects on all aspects of work processes and living together. Employers are responding to the crisis by expanding their home offices. At the same time, schools and universities are trying to keep teaching going with online courses. For many families, home office and "home-schooling" take place simultaneously. The accelerated digitalization of the world of work holds potential (efficiency through flexibility, cost savings, reduction of transportation and emissions, etc.) and also significant social changes and challenges. In a regional comparison, it is important to obtain further data and to better interpret the effects in the larger social context.

Prof. Thierry Karsenti (University of Montréal) presented insights from researchers across the RLS regions into the trends linked to working from home during the pandemic, including cybersecurity.

C. Launch of the Digital Health Initiative

Following a Bavarian proposal, the RLS regions launched the Digital Health Initiative on 16 September. At the kick-off event, "*How can AI support approaches to slowing and ending the COVID-19 pandemic: Reports from the regions*", experts from all seven RLS regions focused on artificial intelligence. Artificial intelligence (AI) allows the virus to be analyzed, diagnosed, predicted and combatted more reliably, with more individualized treatments for affected patients. In addition, AI supports faster ways of drug and medication development and provides the basis for various apps for contact tracing. This is already demonstrated by successful applications in the seven regions - from epidemiology and clinical research to AI-supported evaluation of diagnostic image and text data and patient monitoring. The RLS-Sciences Network is ideally suited to promote "Digital Health" from a regional perspective at both levels of the data and data infrastructure - while upholding data protection and ethical principles - in a cooperative exchange and to expand the existing location advantages worldwide.

The launch of the Digital Health Initiative was supported at a high political level. Statements from Dr. Florian Herrmann, Head of the Bavarian State Chancellery and Minister of Federal and European Affairs and Media, as well as from Christine Haberlander, Vice Governor of Upper Austria, demonstrated the interest and commitment of the RLS governments.

Digital Health is a very broad field and currently consists of three pillars: AI, MedTech and clinical research. In order to exploit the scientific and technological potential of the seven regions and at the same time to sound out the particular added value of regional cooperation, the RLS-Sciences network discussed possibilities to analyze more closely where exactly a joint approach would make the most sense. An example was identified in the area of health data.

Before the COVID-19 crisis, significant changes in the health sector were underway in many places in the course of the fourth industrial revolution. The pandemic massively accelerated the demand for digital medical solutions. In particular, the three areas of artificial intelligence, telemedicine and digitized healthcare management (digitization of data and processes in clinics, practices, laboratories and health authorities) are suddenly gaining attention and demonstrate the opportunities that Digital Healthcare offers, even beyond the current emergency situation. In the scientific field, regional examples show how the automated combination of data from clinical trials, disease registries, electronic health records and mobile health applications will give researchers rapid access to a wealth of information, and how AI will increasingly transform clinical research.

The collection, sharing, and use of large amounts of data is already the key. It goes hand in hand with correspondingly ambitious data concepts that need to be redesigned and scalable digital infrastructures that conform to data protection regulations. User-friendliness and social acceptance by users is also fundamental to success. The Digital Health initiative provided a strong starting point to begin the further exploration and development of these and many other critical issues in the RLS regions.