



# [Event May 18-20th] French American Innovation Days - Facing the Predictably Unpredictable

## PREFACE

*2020 was not only marked by the COVID-19 pandemic, but also with the most active tropical storm season in the Atlantic, reminding us of the looming menace of global warming. The first event, despite predictions that pandemics such as this one could appear, exposed a world mostly unprepared, underlining the failure of “sentinel labs”, such as the ones in Wuhan itself and Hong Kong, to detect the threat. The second event could be seen as “the canary in the coal mine” of future disastrous events. But the lack of clear warning signal largely prevented the actions of stakeholders from the global sphere to individual consumer choices.*

*On the scientific side, the main challenge is to identify “tipping points” (TP), defined as “points or thresholds at which small quantitative changes in the system trigger a non-linear change process that is driven by system-internal feedback mechanisms and inevitably leads to a qualitatively different state of the system, which is often irreversible”. The key issue here is to identify “early warning signals”. It is not only related to having enough data or using a vast array of sensors, but also making sense of the data collected. And then, if the tipping point cannot be avoided, proposing solutions to get the system “back on track” enhancing resistance and resilience of socio-ecosystems.*

# EVENT

## FRENCH AMERICAN INNOVATION DAYS: MAY 18-20TH

[Join us 3 sessions over 3 days](#) at regular schedule to explore the study of warning signals, the challenges of tipping points and the solutions and innovations to improve preparedness, risk management and resilience.

We invited **guest speakers from the academia and from the private sector (innovative companies, startups) from both France and the US**. This unique event with a collaborative perspective will allow us to open discussions on current scientific issues and to present solutions that will benefit from deployment. Each session (2h30) will be a new opportunity to **be inspired** and to **meet** with other experts and stakeholders.



**FACING THE PREDICTABLY UNPREDICTABLE**  
SCIENCE AND INNOVATION FOR OUR ENVIRONMENTAL FUTURES

*French-American Innovation Days*  
May 18-20, 2021

**3 DAYS OF TALKS AND VIRTUAL NETWORKING**  
From 9am-10:30am (PST) // 11am-1:30pm (EST) // 17h-19h30 (FR)

**SESSION 1: Acquiring data: sensors for all environments**  
**SESSION 2: Modeling and forecasting: the challenges of tipping points**  
**SESSION 3: From uncertainties to opportunities: environmental innovation for better futures**

[Register on Eventbrite](#)

AMBASSADE DE FRANCE AUX ETATS-UNIS | CONSULAT GENERAL DE FRANCE A LOS ANGELES | FRENCH AMERICAN INNOVATION DAYS | in association with | iGLOBES | THE UNIVERSITY OF ARIZONA | CNRS | ENS | PSL\*

# PROGRAM

## MAY 18TH - SESSION 1: Acquiring data: sensors for all environments

Building sensors for extreme environments means responding to seemingly

contradictory requirements. On the one hand, sensors must be small, affordable, environmentally friendly, requiring little renewable energy and transmitting long-distance data. On the other hand, they must be very robust to endure extreme conditions: extreme desert heat in the Sonoran Desert, freezing water temperature in Arctic lakes or extraterrestrial conditions. The challenges of building such sensors are as much scientific (which data should be collected? in which time frame?....) as technological (how to protect sensors from hostile environments? How to retrieve data?...). Join the discussion to better understand how researchers and innovators overcome those challenges!

## OPENING REMARKS

- **Julie Duhaut-Bedos**, Consule General of France in Los Angeles
- **Joaquin Ruiz**, Professor, Director of Biosphere 2, Vice President of Global Environmental Futures, University of Arizona
- **Sylvette Tourmente**, Director of the Office for the USA, Canada and Mexico, CNRS

## ACADEMIC SPEAKERS

- **Scott Saleska** Professor, Ecology & Evolutionary Biology, University of Arizona
  - *Acquiring Data to Scale from Molecules to Ecosystem, Standing on the shoulders of both Joseph von Fraunhofer and Carl Woese*
- **Denis Machon**, Associate Professor, University Lyon 1, Visiting Professor, Université de Sherbrooke
  - *Design of sensors for monitoring the environment and ecosystems: from the definition of specifications to production*
- **Roser Matamala**, Terrestrial Ecologist, Argonne National Laboratory
  - *Wireless Underground Sensor Networks for Advancing Agriculture and Terrestrial Ecology*

## STARTUP AND INNOVATION COMPANIES SPEAKERS

- **Dan Angelescu**, CEO & Research Director - Fluidion
  - *Resilient sensors for autonomous water quality surveillance*

- **Arnaud Lacourt**, CEO - UBEEES
  - *Using sensors data to save the bees*
- **Guillaume Valladeau**, Co-founder and CEO, **Jean-Christophe Poisson**, Co-founder and CTO - vorteX.io
  - *Bringing space technologies to communities to prevent from hydrological risks*

## **MAY 19TH - SESSION 2: Modeling and forecasting: the challenges of tipping points**

Sensors can produce a huge quantity of data. But the question now for both scientists, policy makers and managers is to make sense of big data. This requires building the capacity of integrating data in complex modeling systems, using mathematical models which take into account different time and spatial scales. Of particular interest they are the predictions of “tipping points”, in which a small quantitative change in a non-linear system triggers an abrupt shift of the system to a qualitatively different state, which is often irreversible. How do we define tipping points? How do we detect and interpret early warning signals? And how can we interpret them in order to be prepared? Join us and meet the experts from France and the US in the field!

### KEYNOTE

- **David Blanchon**, Associate Professor at the University Paris Nanterre, Currently in “delegation CNRS” at the IRL iGLOBES, University of Arizona

### ACADEMIC SPEAKERS

- **Vasilis Dakos**, Researcher, Risk Sciences Laboratory, IMT Mines Alès
  - *Expecting the Unexpected: Early-Warning Signals for Tipping points*
- **William Pauli**, Assistant Professor, School of Plant Sciences, University of Arizona
  - *Leveraging High Resolution Phenomics Data to Address Crop Performance Uncertainties*
- **Joceline Lega**, Professor of Mathematics and Public Health, University of Arizona

- *Forecasting Disease Risk and Spread*

## STARTUP AND INNOVATION COMPANIES SPEAKERS

- **Steven Levine**, Sr. Director of Life Sciences Industry, Founder & Executive Director, Living Heart Project, Dassault Systèmes
  - *Can Virtual Twins Catalyze a Digital Health Transformation from Treatment to Prevention?*
- **Rob Davis**, Director, Center for Pollinators in Energy, Fresh Energy
- **Dimitri Trotignon**, Chief Data Officer, BiOceanOr
  - *Machine learning and aquaculture: building a more sustainable industry*

## **MAY 20TH - SESSION 3: From uncertainties to opportunities: environmental innovation for better futures**

New technologies and management strategies allow better preparation for unforeseeable events, by strengthening the adaptation capacity and resilience of socio-ecosystems. They are deployed in the field of green infrastructure, solar energy or water management, in what is called the Water-Energy-Food Nexus. Uncertainties should not only be seen as challenges, but as opportunities. How do we take into account uncertainties in future management of socio-ecosystems, such as groundwater resources or semi-arid biomes? How do we build economies that can be catastrophe resilient? This third and last session of the FAID promises to bring together cutting-edge experts to discuss innovations that help prepare for a better future.

## KEYNOTE

- **Sharon Megdal**, Director of the Water Resources Research Center, Professor of Environmental Science, University of Arizona
  - *Preparing for the unpredictable: Discover, Develop, Deploy, and DIALOGUE*

## ACADEMIC SPEAKERS

- **Antonin Hamon**, Researcher, Risk Sciences Laboratory, IMT Mines Alès

- *Crisis management training: implementation of a simulation exercise based on repetition of learning sequences*
- **Patrick Bolton**, Barbara and David Zalaznick Professor, Columbia University
  - *Green Swan: Central banking and climate change*
- **Greg Barron-Gafford**, Associate Professor, School of Geography, Development & Environment, University of Arizona
  - *Agrivoltaics: Avoiding tipping points by building on synergies across the food-energy-water nexus*

#### STARTUP AND INNOVATION COMPANIES SPEAKERS

- **Etienne Menard**, Founder and CTO, Helios Lite
  - *Innovative solutions to unlock new market opportunities for terrestrial and floating solar plants*
- **Denise MacDonald**, Global Brand Marketing, Urchinomics
  - *Restoring kelp forests and the ocean ecosystem through responsible urchin ranching*
- **Thibault Sorret**, Founder and CEO, Wildsense
  - *Bark Beetles, Climate Change and Satellites*

[Registration on Evenbrite.](#)