Universität Stuttgart

Dr.-Sc.
Andrew
Clifton

LIKE
Open Science Course
Seminar 4: Communications Strategies

10 November 2020

Today's discussion

Cover page photo by Jason Rosewell on Unsplash

Recap: The LIKE Open Science Course

The story so far

- What's open science?
- How do we make our science open?
- Can I just make it open?

The story so far

- What's open science?
- How do we make our science open?
- Can I just make it open?

Self-study 3: What was your experience of making your work open?

Course outline

Seminar	Self-study	Assignment
1. Introducing open science		
	1. Background reading	
2. Guiding principles		
	2. Is your group's work FAIR?	
3. Open science and intellectual property		
	3. Implementing open science	
4. **Communicating your science**		
	4. Communications strategies	
		1. Implementation case study
5. What are data management plans and why do they matter?		
	5. Draft a data management plan	
Workshop: Open science in LIKE		
	6. Revise data management plan	
		2. Data management plan

Introduction

If no-one knows you did it,
you didn't do it.

Our goals for today

Learn how to promote your work by crafting and executing a communications strategy

- Why do we communicate?
- How do we communicate?
- What do we communicate?

Who's here?

Andy Clifton

IEA Wind Task 32
Operating Agent

Nikola Vasiljevic

Special Consultant for
Digitalization

And you

Please introduce yourselves!

Telling people about your work

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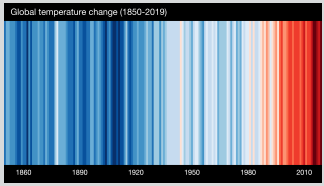
Why do we communicate?

Effective communications make a difference

They make you aware



Annual average temperatures for the globe. Image by Ed Hawkins (University of Reading). Used under CC BY 4.0 license.

They make you care

Photo by Mika Baumeister on Unsplash

They make you act

German Federal Centre for Health Education (BZgA)

Getting started

Figure out why you are communicating:

- Who's the audience?
- What do you want them to do?
- How does your communication help?

Work out how to achieve that goal:

- Inform
- Persuade
- Provoke

Choose your media

Tell your story

REVIEW SUMMARY

RENEWABLE ENERGY

Grand challenges in the science of wind energy

Paul Veers*, Katherine Dykes*, Eric Lantz*, Stephan Barth, Carlo L. Bottasso, Ola Carlson, Andrew Clifton, Johney Green, Peter Green, Hannele Holttinen, Daniel Laird, Ville Lehtomäki, Julie K. Lundquist, James Manwell, Melinda Marquis, Charles Meneveau, Patrick Moriarty, Xabier Munduate, Michael Muskulus, Jonathan Naughton, Lucy Pao, Joshua Paquette, Joachim Peinke, Amy Robertson, Javier Sanz Rodrigo, Anna Maria Sempreviva, J. Charles Smith, Aidan Tuohy, Ryan Wiser

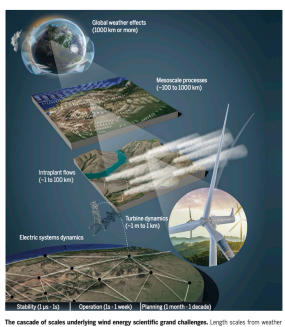
BACKGROUND: A growing global population and an increasing demand for energy services are expected to result in substantially greater deployment of clean energy sources. Wind energy is already playing a role as a mainstream source of electricity, driven by decades of scientific discovery and technology development. Additional research and exploration of design options are needed to drive innovation to meet future demand and functionality. The growing scale and deployment expansion will, however, push the technology into areas of both scientific and engineering uncertainty. This Review explores grand challenges in wind energy research that must be addressed to enable wind energy to supply one-third to one-half, or even more, of the world's electricity needs.

ADVANCES: Drawing from a recent international workshop, we identify three grand challenges in wind energy research that require further progress from the scientific community: (i) improved understanding of the physics of atmospheric flow in the critical zone of wind power plant operation, (ii) materials and system dynamics of individual wind turbines, and (iii) optimization and control of fleets of wind plants comprising hundreds of individual generators working synergistically within the larger electric grid system. These grand challenges are interrelated, so progress in each domain must build on concurrent advances in the other two. Characterizing the wind power plant operating zone in the atmosphere will be essential to designing the next generation of even-larger wind turbines and achieving dynamic control of the machines. Enhanced forecasting of the nature of the atmospheric inflow will subsequently enable control of the plant in the manner necessary for grid support. These wind energy science challenges bridge previously separable geospatial and temporal scales that extend from the physics of the atmosphere to flexible aeroelastic and mechanical systems more than 200 m in diameter and, ultimately, to the electrical integration with and support for a continent-sized grid system.

OUTLOOK: Meeting the grand research challenges in wind energy science will enable the wind power plant of the future to supply many of the anticipated electricity system needs at a low cost. The interdependence of the grand challenges requires expansion of integrated and cross-disciplinary research efforts. Methods for handling and streamlining exchange of vast quantities of information across many disciplines (both experimental and computational) will also be crucial to enabling successful integrated research. Moreover, research in fields related to computational and data science will support the research community in seeking to further integrate models and data across scales and disciplines. ≡

ON OUR WEBSITE

Read the full article at http://dx.doi.org/10.1126/science.aau2027



The cascade of scales underlying wind energy scientific grand challenges. Length scales from weather systems at a global level down the boundary layer of a wind turbine airfoil and time scales from seasonal fluctuations in weather to subsecond dynamic control and balancing of electrical generation and demand must be understood and managed.

ILLUSTRATION: JOSH HOLMES AND BRIAN KAUKENBERG, NREL

The list of author affiliations is available in the full article online.
*Corresponding author. Email: paul.veers@nrel.gov (P.V.); katy@dtu.dk (K.D.); eric.lantz@nrel.gov (E.L.)
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TOMORROW'S EARTH
Read more articles online at scim.ag/TomorrowsEarth

Channel - Audience - Message

Apps & mobile devices

Photo by Ben Kolde on Unsplash

Audience: Almost anyone
Message: Call to action.

Conferences & Webinars

Photo by Chris Montgomery on Unsplash

Audience: Already interested
Message: Insight & understanding.

Print*

Photo by Annie Spratt on Unsplash

Audience: *Really* interested
Message: Actionable information.

Are there better ways to reach your audience?

Photo by Sam McGhee on Unsplash

Closing thoughts

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Seminar summary

You've learned:

- Why we communicate
- Some ways to communicate
- How to structure your communications

Photo by Mathew Schwartz on Unsplash

What to do now

Further reading

- The Birth of Linux: How Linux Got Started. (Linux.com, 2020)
- The open Bike Initiative

Self-study 4: Communicate!

Create and implement a communications strategy for two of your stakeholder groups

- See the guidance on GitHub.

Assignment 1: Implementation Case Study

Prepare a case study about making your work FAIR and communicating it to your stakeholders.

- See the guidance on GitHub.

Seminar 5: data management plans

What are data management plans, and why do they matter?

- See the Seminar materials on GitHub

A what now?

Assignment 1:
Prepare a case study based on your self-study work to describe what was done to make your work FAIR and implement the R5 concepts, and how you communicated your work to your stakeholders. For example...

- Publishing your Master's thesis through your university's data portal and promoting it to stakeholders.
- Promoting results or a first paper from your LIKE PhD through websites like LinkedIn, Xing, or other social media
- Sharing code or other results through GitHub, Zenodo, or some other repository and sharing results with colleagues

Deliverable: Prepare a 5-minute presentation for the workshop.

N.B: These details may be out of date! Always check the assignment details on GitHub.