



Universität Stuttgart

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# LIKE

## Open Science Course

### Seminar 4: Communications Strategies

10 November 2020



# Today's discussion

- 1 Recap: Open Science
- 2 Introduction
- 3 Telling people about your work
- 4 Closing thoughts

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# Recap: Open Science

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# The story so far

## A recap

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

# The story so far

## A recap

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

## Self-study 3: Implementing Open Science

*Working with your group, implement at least two of the ideas for improving the openness of your work that you identified in self-study 2*

- What was your experience of making your work open?

## Workshop: Your experiences of implementing open science

*Share your experience of implementing open science...*

- Each student will have 10 minutes to present their case study and obtain feedback from their colleagues.

# Course outline

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

# Introduction

2

# Our goals for today

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

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?



If a tree falls in a forest and no one is around to hear it, does it make a sound?

Photo by [Harry Shelton](#) on [Unsplash](#)



**Telling people  
about your work**

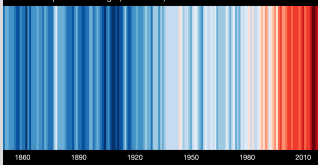
**3**

# Why do we communicate?

# Effective communications make a difference

## They make you aware

Global temperature change (1850-2019)



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

### Piktogramme Hygienetipps



Regelmäßig Hände waschen



Hände gründlich waschen



Hände aus dem Gesicht fernhalten



Richtig husten und niesen



Abstand halten



Wunden schützen



Auf ein sauberes Zuhause achten



Mit Lebensmitteln hygienisch umgehen



Wäsche heiß waschen



Regelmäßig lüften

 **infektionsschutz.de**  
Wissen, was schützt.

 CC BY-NC-ND

German Federal Centre for Health Education (BZgA)

# 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\*

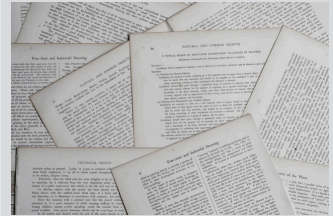


Photo by [Annie Spratt](#) on [Unsplash](#)

**Audience:** *Really* interested  
**Message:** Actionable information.

# Are there better ways to reach your audience?



Photo by [Sam McGhee](#) on [Unsplash](#)

# And now, you tell your story



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Wind energy in need of further development

DTU  
EDUCATION RESEARCH INNOVATION COLLABORATION

Technical University of Denmark · News · Wind energy in need of further development

Wind energy in need of further development

News Release: NREL Publishes Science Journal Article Posing Three Challenges to Wind Energy Potential

Oct. 10, 2019

Wind energy researchers from the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) are among a team of authors inviting the scientific community to address three challenges that will drive the innovation needed for wind to become one of the world's primary sources of low-cost electricity generation.

Their call to action appeared in a [new journal article](#) published in Science.

"People think that because wind turbines have worked for decades, there's no room for improvement. And yet, there's so much more to be done," said NREL Research Fellow & article co-author Paul Veers. "Wind energy has the potential to be a primary source of cost energy for the world, but we won't get there on a business-as-usual trajectory. We need scientists and researchers worldwide to join us in addressing wind's research

## RESEARCH

### REVIEW SUMMARY

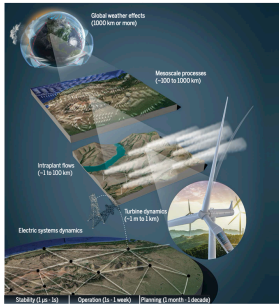
#### RENEWABLE ENERGY

### Grand challenges in the science of wind energy

Paul Veers\*, Katherine Dyles\*, Eric Lantz\*, Stephan Barth, Carlo L. Bottasso, Ola Carlsson, Andrew Clifton, Johnny Green, Peter Green, Hannele Holttinen, Daniel Laird, Ville Lehtonen, Julie K. Lundquist, James Maxwell, Melinda Marquez, Charles Menewese, Patrick Moriarty, Xavier Mundula, Michael Muskat, Jonathan Naughton, Lucy Pao, Joshua Paquette, Joachim Peinke, Amy Robertson, Javier Sanz Rodriguez, Anna Maria Sempreviva, J. Charles Smith, Alden Tiedt, 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 re-



**The cascade of scales underlying wind energy scientific grand challenges.** Length scales from weather systems at a global level down to 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.

Veers et al., *Science* **366**, 943 (2019) 25 October 2019

search 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 turbines 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 ever-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 aerodynamic and mechanical systems more than 200 m in diameter and, ultimately, to the electrical integration with and support for a continent-sized grid system.

**ON OUR WEBSITE**  
Read the full article at <http://dx.doi.org/10.1126/science.aaa2027>

**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 integrative models and data across scales and disciplines.

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Cite this article as P. Veers et al., *Science* **366**, aaa2027 (2019). DOI: 10.1126/science.aaa2027

**TOMORROW'S EARTH**  
Read more articles online at [scm.ag/TomorrowsEarth](http://scm.ag/TomorrowsEarth)



NREL publishes journal article on three challenges in wind power innovation

Windpower

Staff | October 11, 2019

ing researchers from the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) are among a team of authors inviting the scientific community to address three challenges that will drive the innovation needed for wind to become one of the world's primary sources of low-cost electricity generation.

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think that because wind turbines have worked for decades, there's no room for improvement. And yet, there's so much to be done," said NREL Research Fellow and article co-author Paul Veers. "Wind energy has the potential to be a primary source of low-cost energy for the world, but we won't get there on a business-as-usual trajectory. We need scientists and researchers worldwide to join us in addressing wind's research challenges."

17, NREL convened more than 70 wind experts representing 15 countries to discuss a future electricity system where wind serves the global demand for clean energy. Based on this workshop, article lead authors Veers, NREL Group Research Fellow & article co-author Paul Veers, NREL Group Research Fellow & article co-author Paul Veers, NREL Group Research Fellow & article co-author Paul Veers identified three "grand challenges" in wind energy that require further progress from the scientific community.

**First grand challenge:** Improved understanding of the wind resource and flow in the region of the atmosphere where wind power plants operate

**Linked in**

1 of 1

# Designing a communications strategy

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:

- To make people aware: inform
- To make people care: persuade
- To make people act: push or provoke

Choose your media

Tell your story



**Closing thoughts**

**4**

# Seminar summary

Once you've made your science open, you need to let people know about it. That's where communications are needed.

You've learned:

- Why we communicate
- Some ways to communicate
- How to make communications effective
- The elements of a communications strategy



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](#).

# Let's make this presentation open

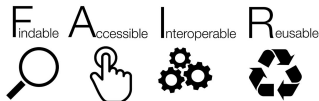
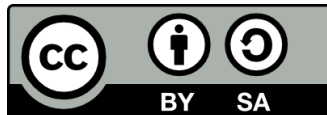


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