Improving Scientific Visuals

Nicole Sharp, PhD

APS DFD Meeting

Seattle, WA

25 November 2018

On science communication

NICOLE SHARP WELCOME ABOUT

APS Division of Fluid Dynamics Presentations

- 2019: "Improving Scientific Visuals," Slideshow
- 2018: "F*** Yeah Fluid Dynamics: Tips for Connecting with Broader Audiences," Slideshow (.pdf, 2.4MB)
- 2017: "F*** Yeah Fluid Dynamics: Getting into science communication," Slideshow (.pdf, 2.5MB)
- 2016: " 'In a sea of sticky molasses': The physics of the Boston Molasses Flood," Slideshow (.pptx, 43.4 MB)
- 2016: "F*** Yeah Fluid Dynamics: Inside the science communication process," Slideshow (.pptx, 22 MB)

2016: Inside the science communication process

2017: Getting into science communication

2018: Tips for connecting with broader audiences

2019: Improving scientific visuals

http://nicolesharp.com/talks

Also don't miss my other talk!

72nd Annual Meeting of the APS Division of Fluid Dynamics
Saturday–Tuesday, November 23–26, 2019; Seattle, Washington

Session K03: Invited Talk: Adopting a Communication Lifestyle
11:40 AM–12:15 PM, Monday, November 25, 2019
Room: 6e

Chair: Jean Hertzberg, University of Colorado, Boulder

Abstract: K03.00001 : Adopting a Communication Lifestyle
11:40 AM–12:15 PM

Preview Abstract

Author:

Nicole Sharp
(Sharp Science Communications Consulting, LLC)

As scientists and engineers, good communication is key to our success in academia, industry, and research. Yet this critical skill often receives short shrift in our training. This presentation explores techniques for integrating communication training into our everyday practices, whether as students, researchers, or senior scientists. With some forethought and habit-building, preparing engaging conference presentations, writing journal articles, or interacting with journalists doesn't have to be a painful, last-minute scramble. Instead, these activities can be just another part of your communication lifestyle.

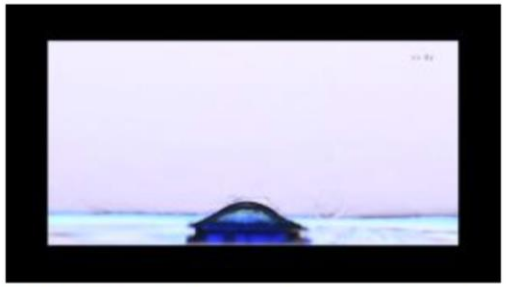
TODAY at 11:40 AM in Room 6e

Scientific visuals

71th Annual Meeting of the APS Division of Fluid Dynamics

Atlanta, GA - November 18, 2018 — November 20, 2018

2018 APS/DFD Milton van Dyke Award Winners (Video)

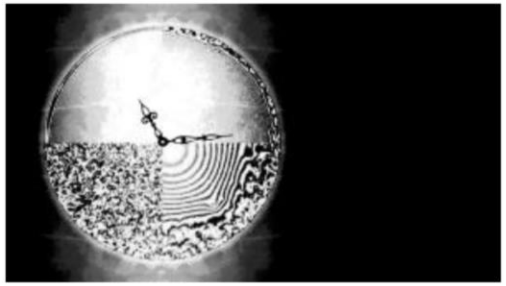


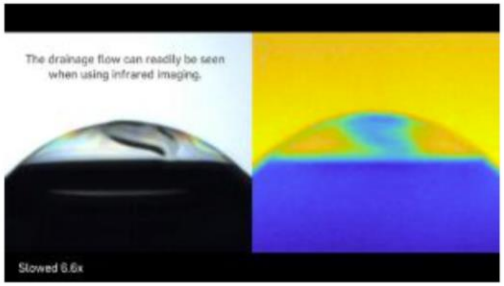
V0054: The shaky life of a water drop in an anise oil-rich environment

V0018: Premixed-flame oscillations in narrow channels

V0070: Dripping down the rivulet

2018 APS/DFD Gallery of Fluid Motion Award Winners (Video)





Screenshot from the 2018 Gallery of Fluid Motion

Scientific visuals

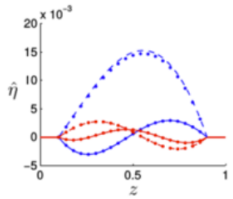
Instability, Transition, and Control

Effect of base-state curvature on self-excited high-frequency oscillations in flow through an elastic-walled channel

PDF HTML

Thomas J. Ward and Robert J. Whittaker

Phys. Rev. Fluids **4**, 113901 (2019) – Published 11 November 2019



We derive a new “tube law” for elastic-walled channels, which takes into account the axial stretching that arises because of axial curvature in the base state. We quantify the effect of the new law on oscillatory fluid-structure-interaction modes in the channel and their stability.

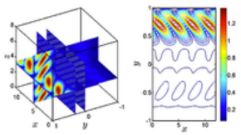
Show Abstract

Coriolis force-driven instabilities in stratified miscible layers on a rotationally actuated microfluidic platform

PDF HTML

Saunak Sengupta, Sukhendu Ghosh, Sandeep Saha, and Suman Chakraborty

Phys. Rev. Fluids **4**, 113902 (2019) – Published 13 November 2019



We find unique perturbations in rotational flows because of flow instabilities.

Show Abstract

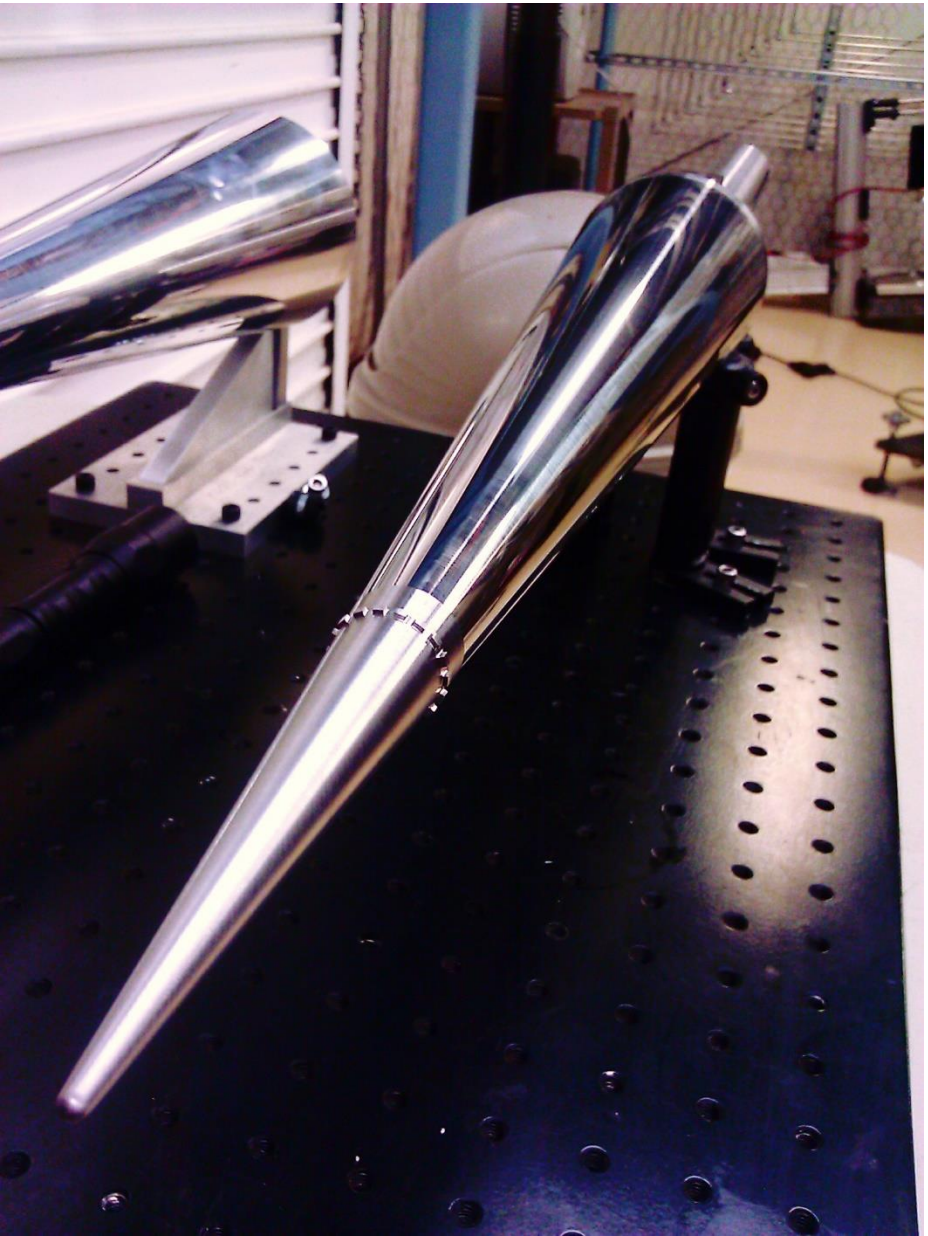
Screenshot from Physical Review Fluids, Volume 4, Issue 11

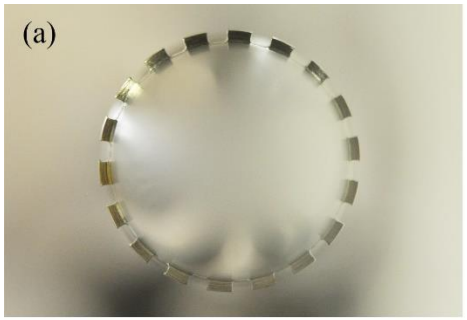
What makes something look good?

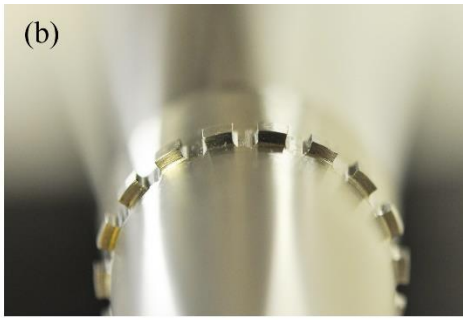
Image credit: Expert Photography

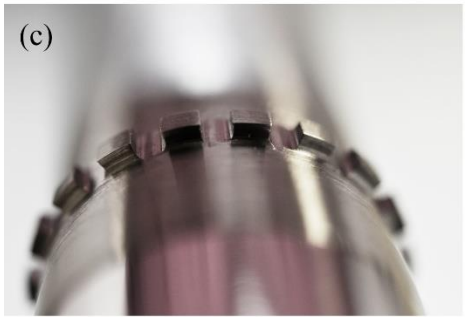
What do you want people to see?

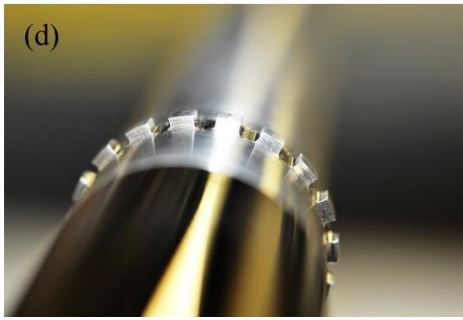
What do you want people to see?





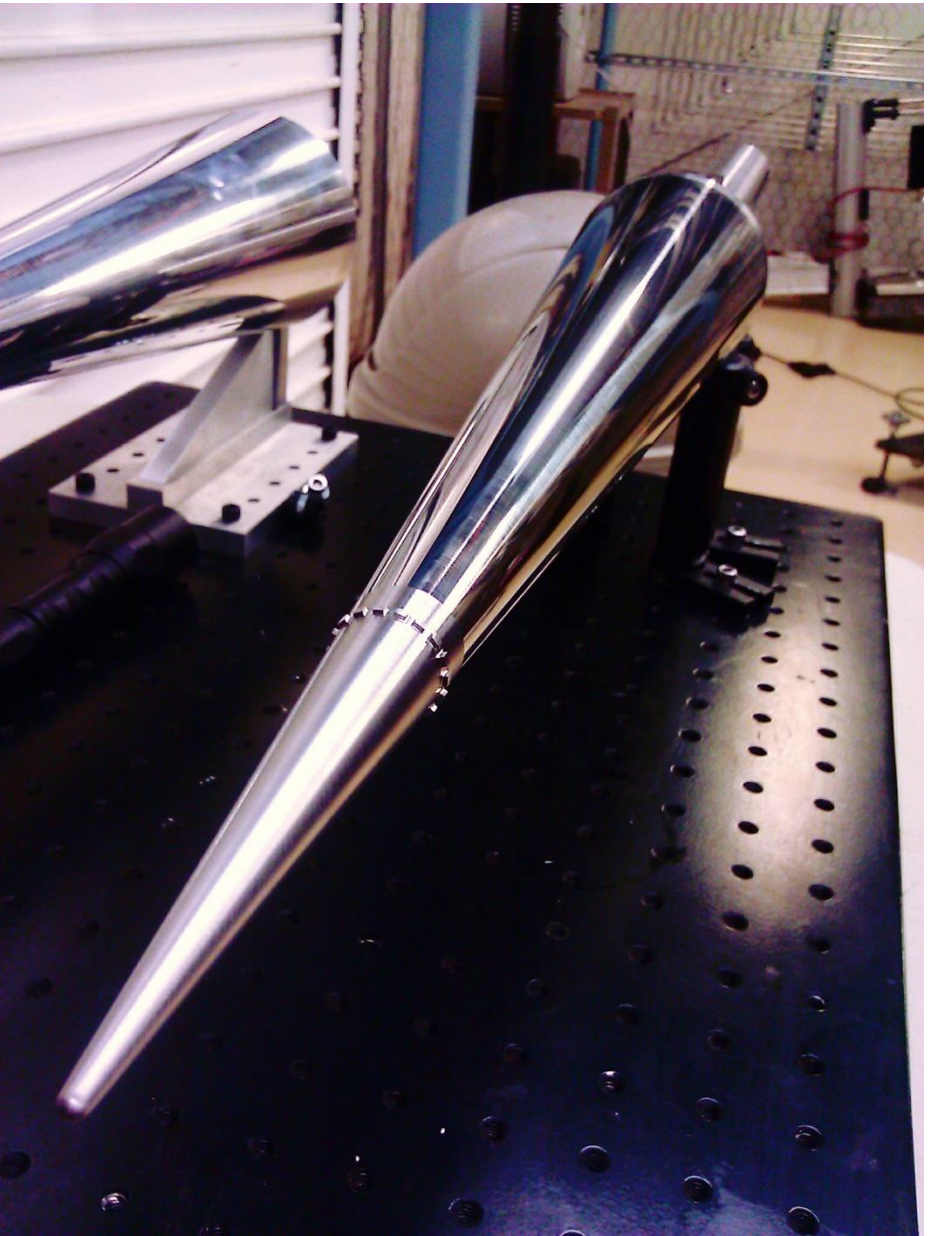






Photos by N. Sharp

Get rid of clutter and distractions



Photos by N. Sharp

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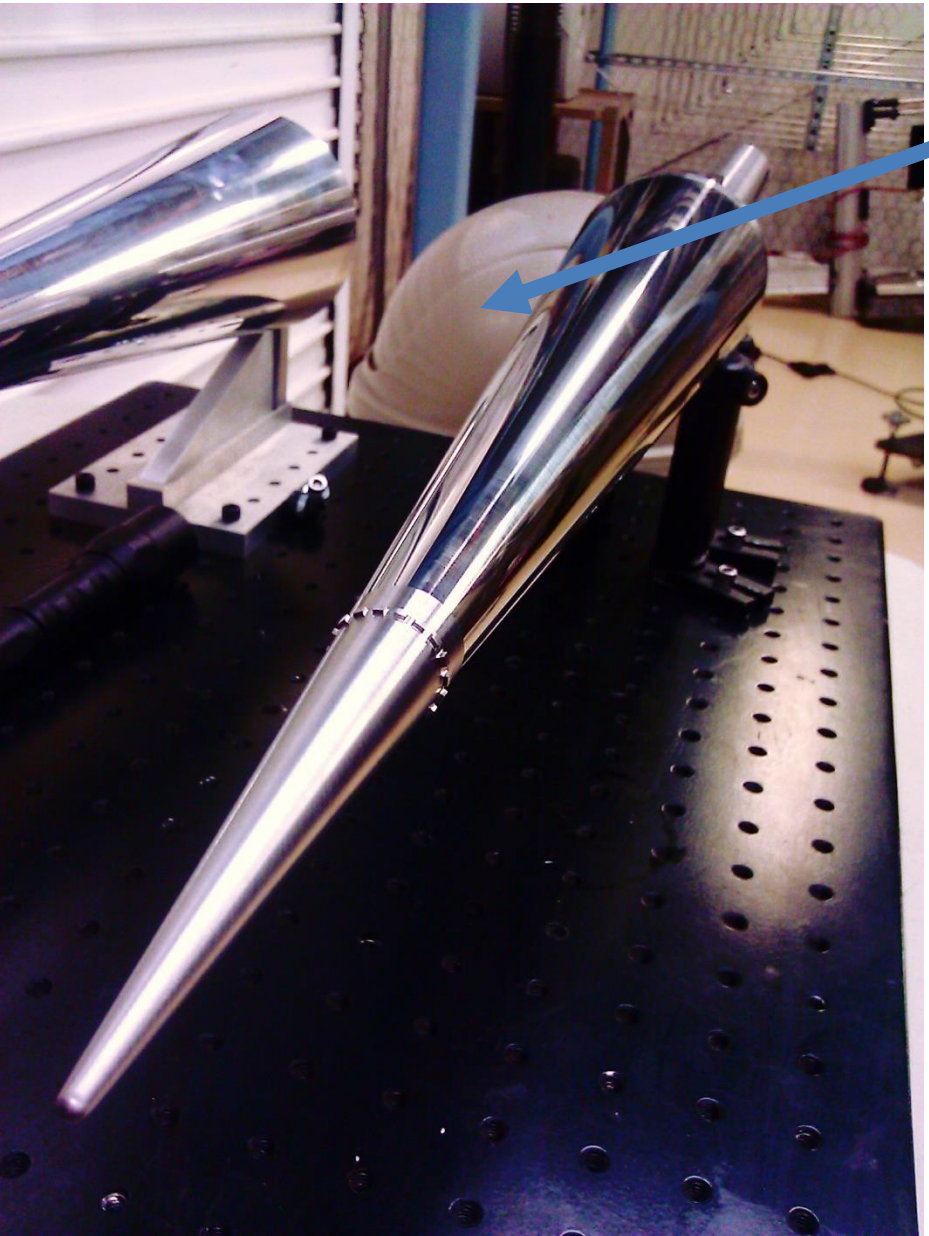
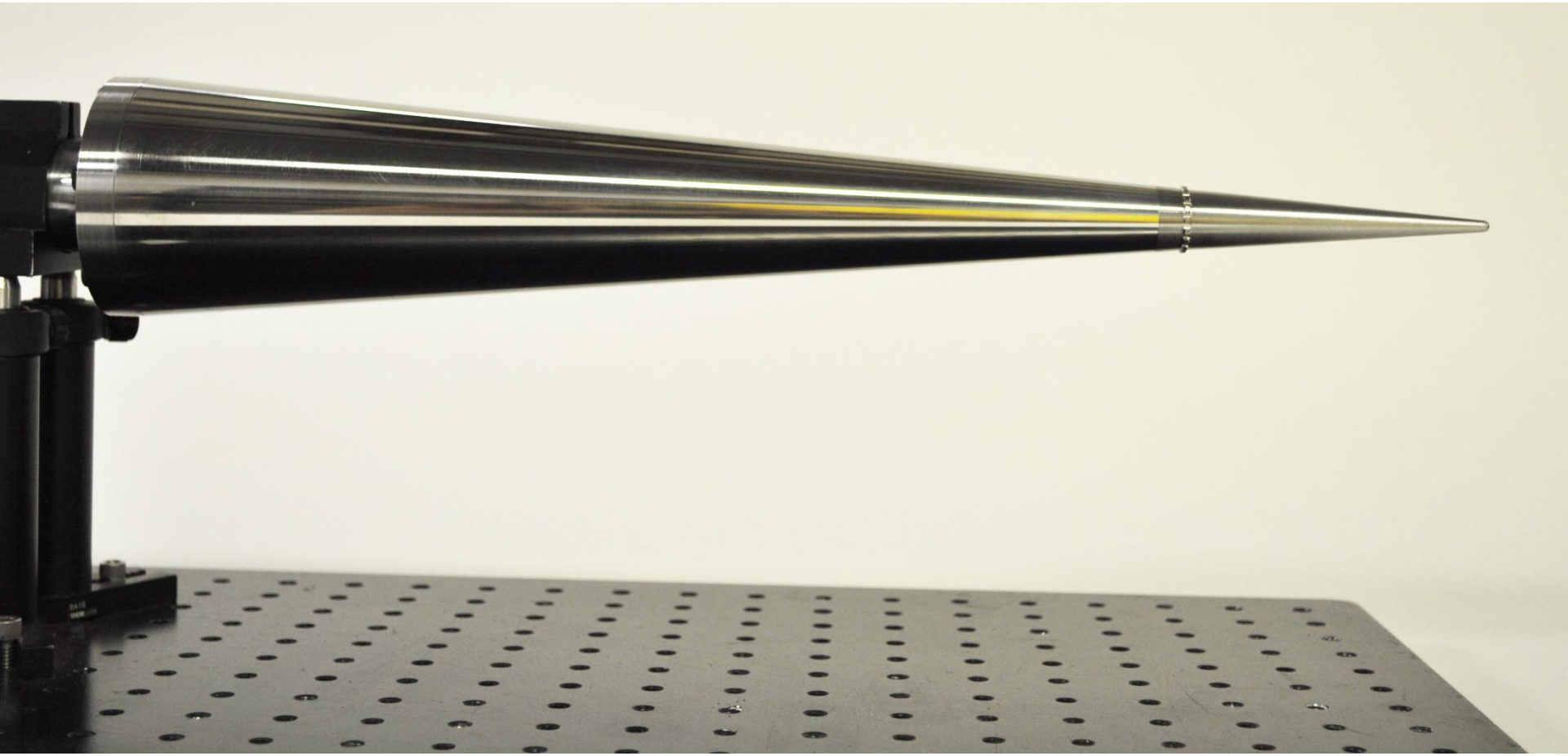


Actual trash can

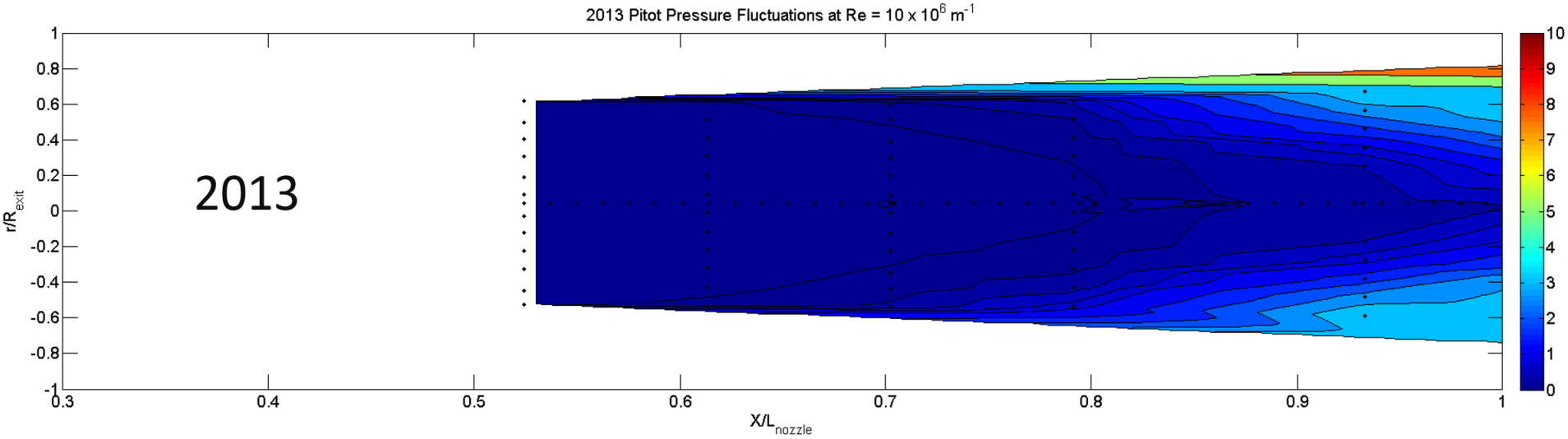
Photos by N. Sharp

Get rid of clutter and distractions



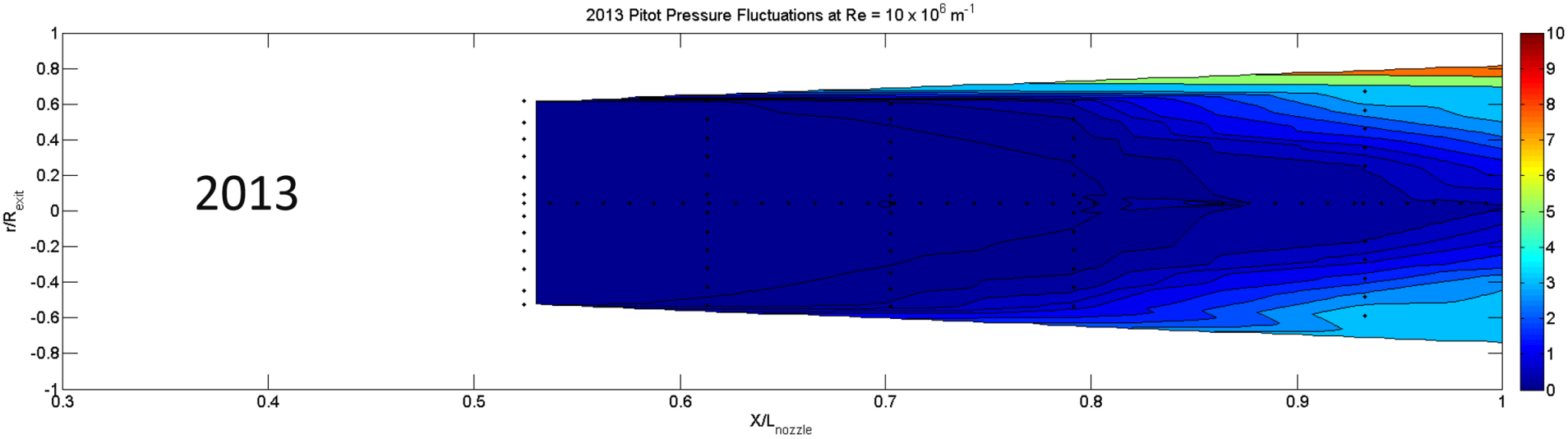
Photos by N. Sharp

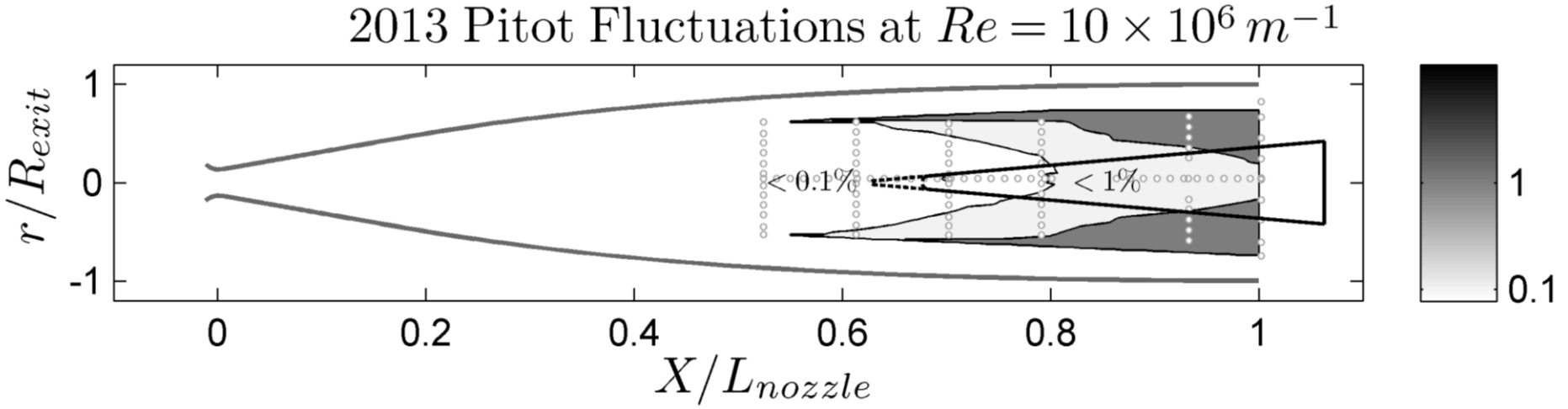
Avoid extraneous information



Figures by N. Sharp

Avoid extraneous information





Figures by N. Sharp

Use color wisely: it can distract...

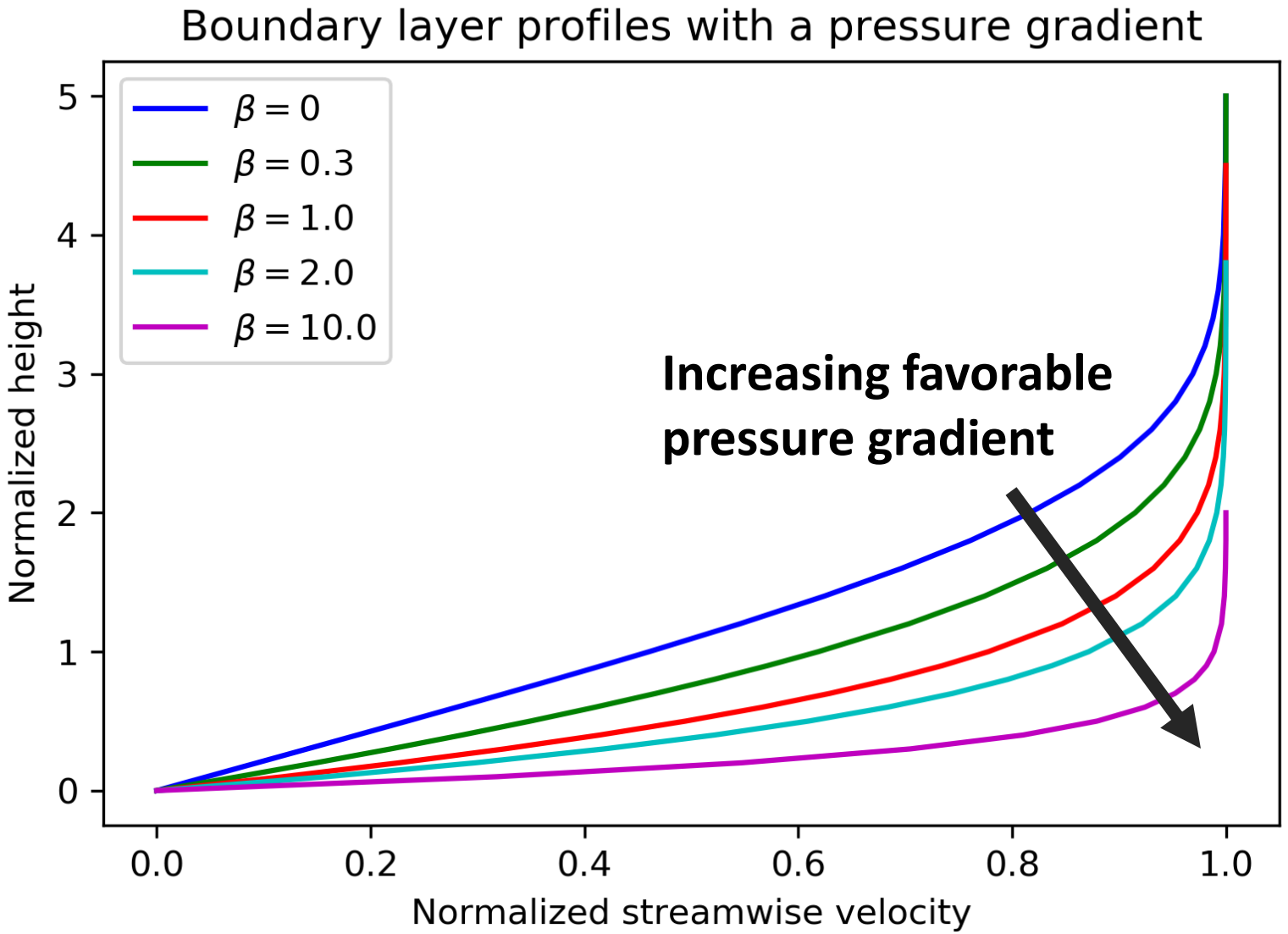


Figure data from F. White, “Viscous Fluid Flow”

…or it can emphasize: sequential color gradients

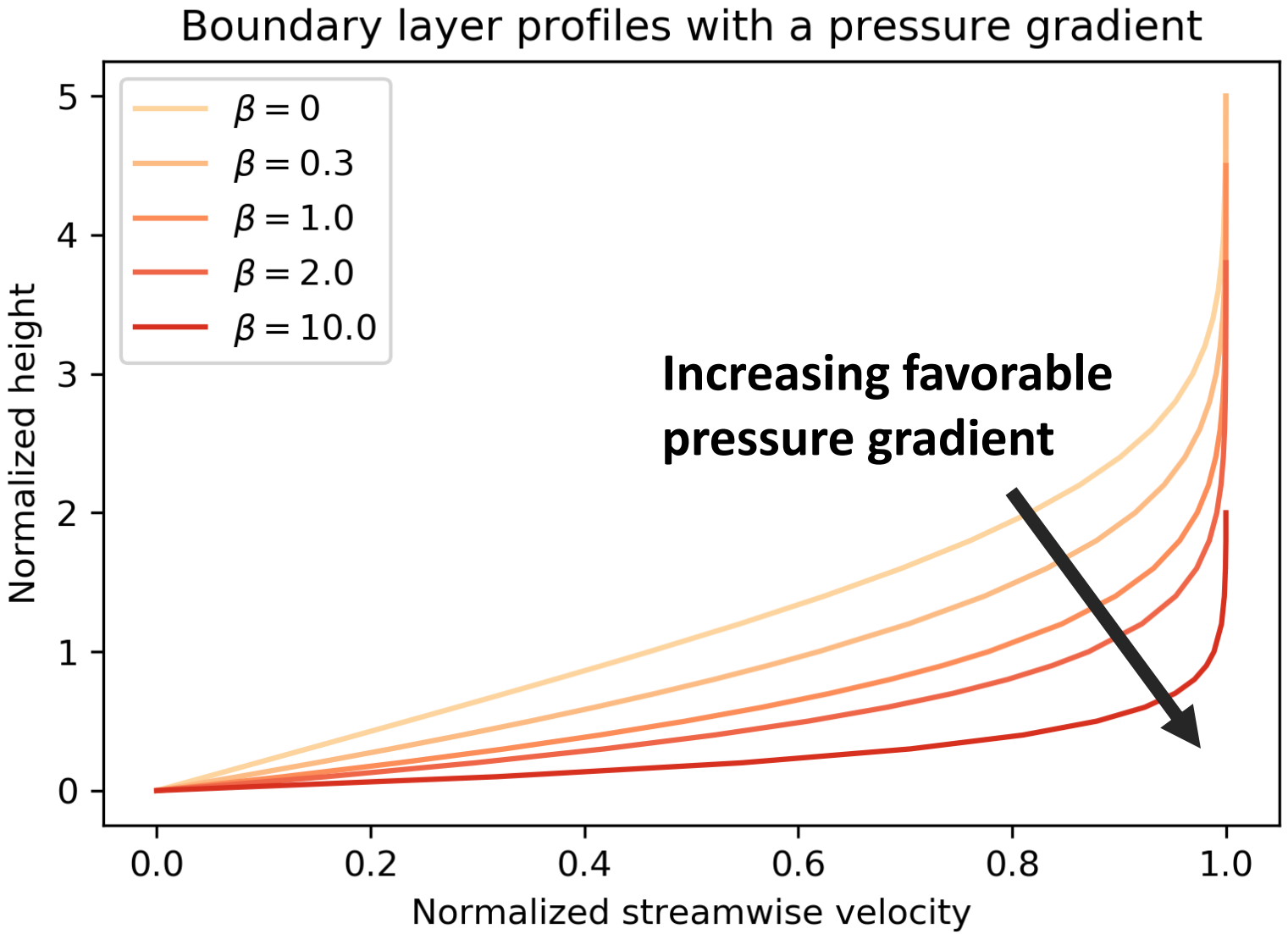


Figure data from F. White, “Viscous Fluid Flow”

More ways to use color

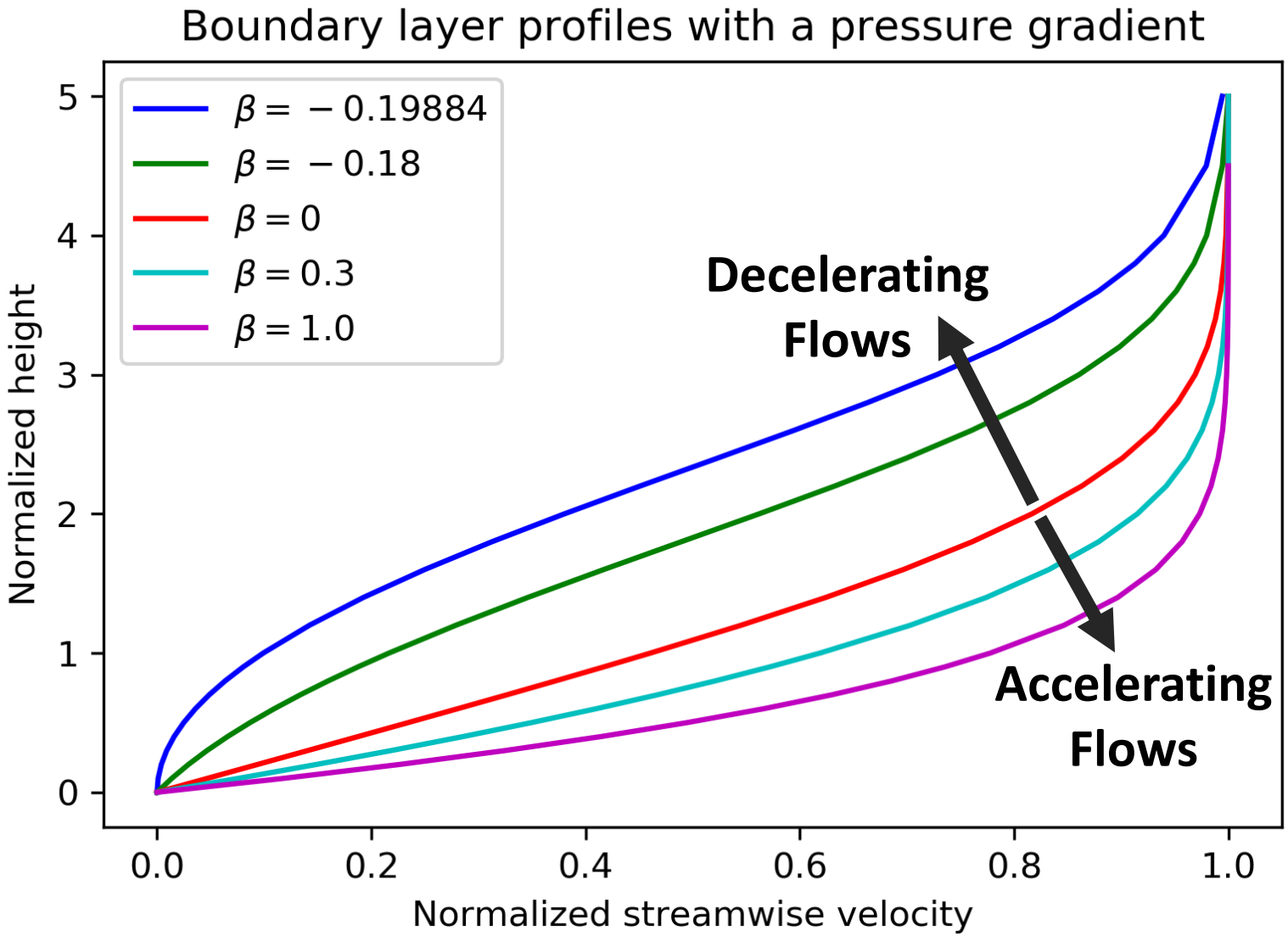


Figure data from F. White, “Viscous Fluid Flow”

More ways to use color: diverging color gradients

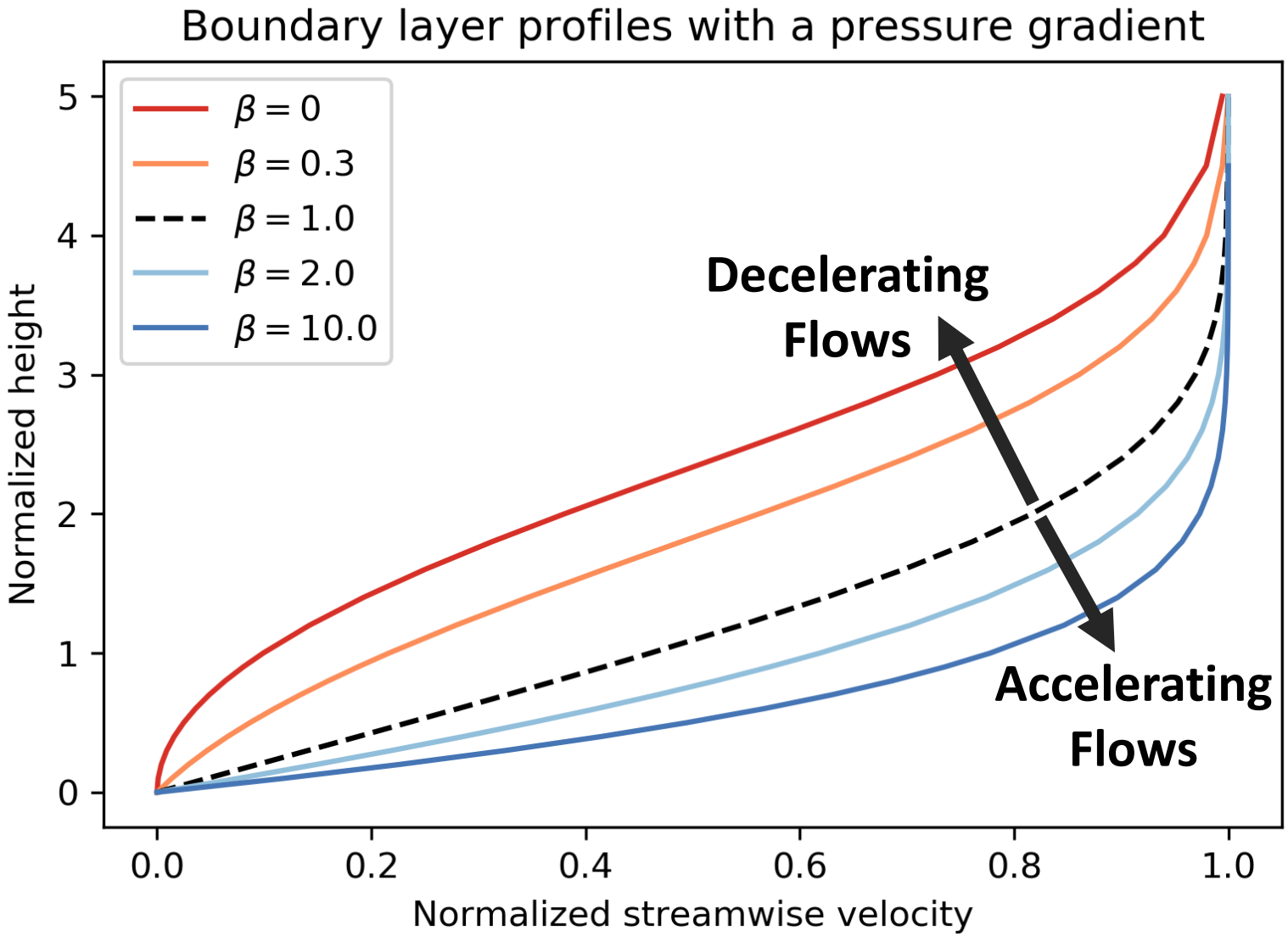
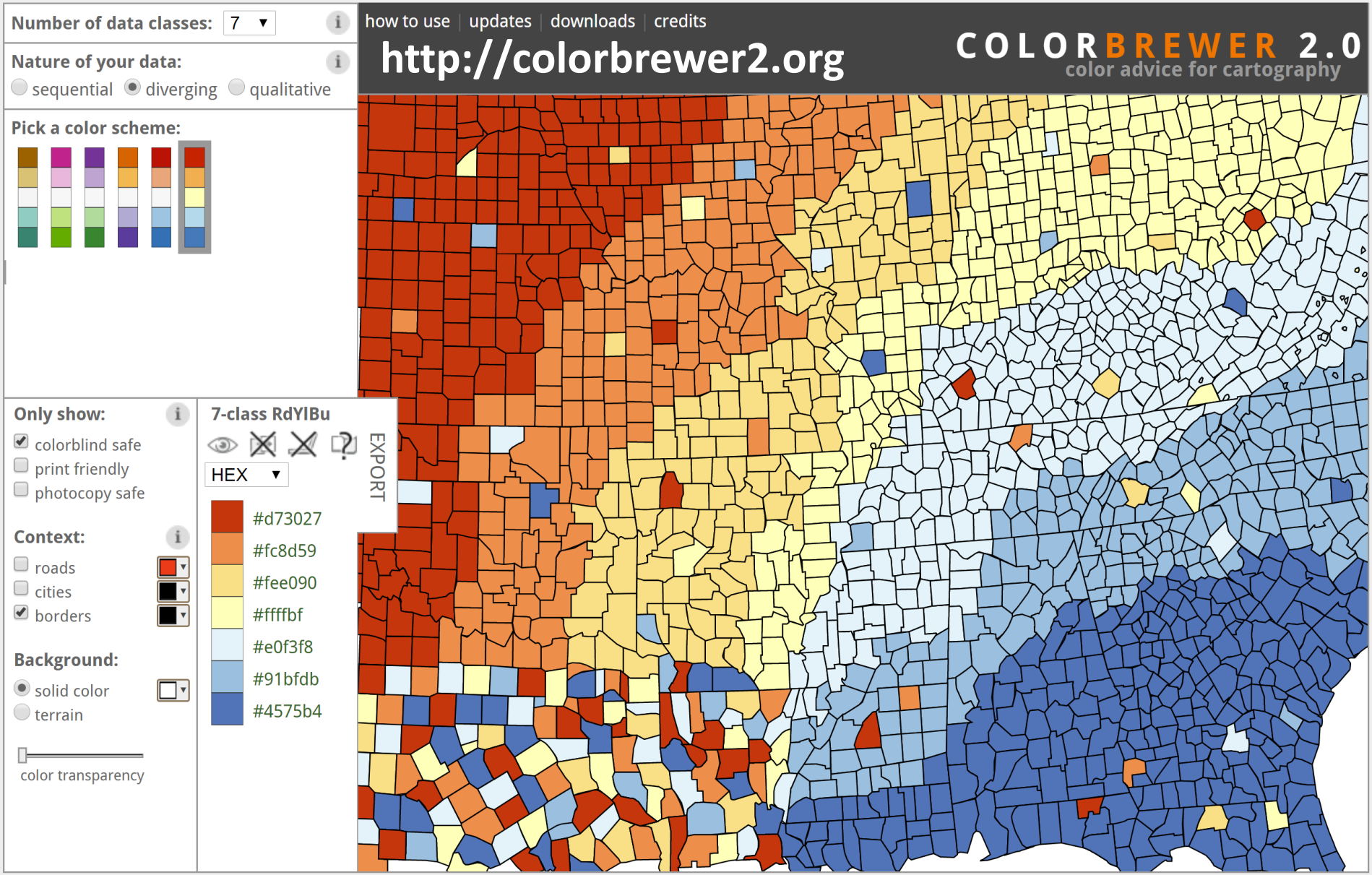


Figure data from F. White, “Viscous Fluid Flow”

Remember to make your color choices accessible



How to improve

Image credit: Rawpixel

A handy resource

Felice C. Frankel, “Picturing Science and Engineering,” MIT Press.

Grab a copy of these slides:

http://nicolesharp.com/talks

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See me for details.

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