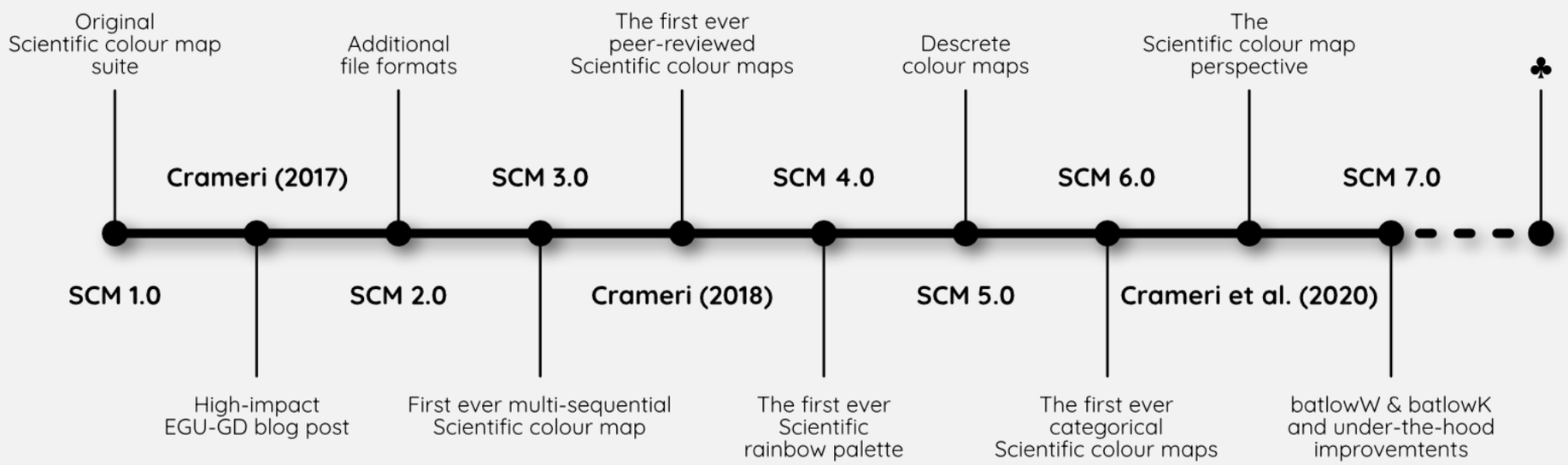
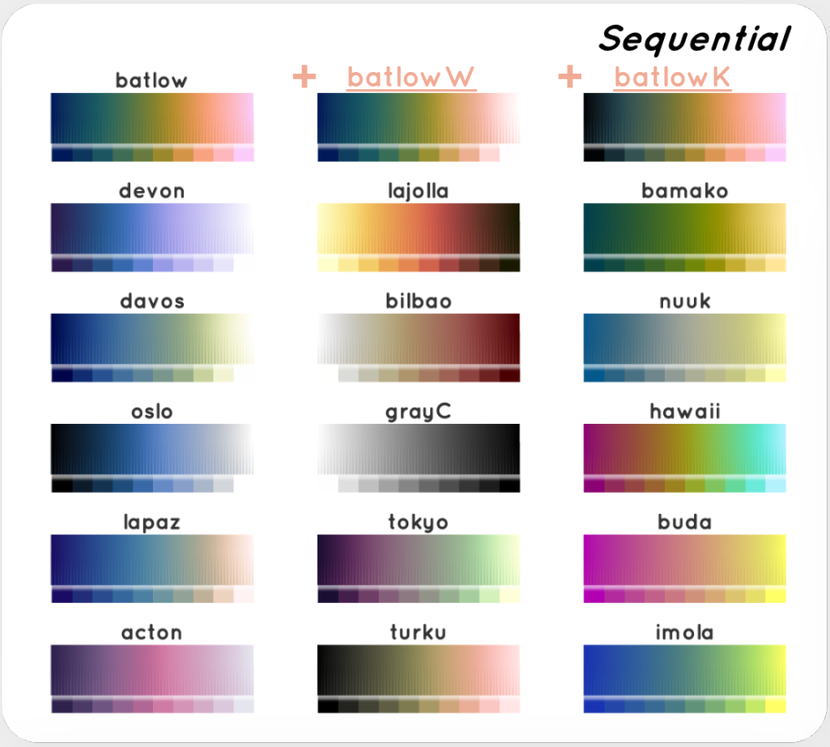
Sharing is encouraged

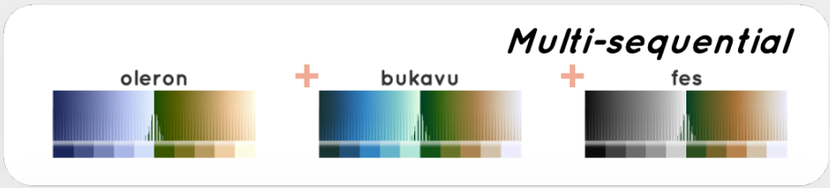
The "Scientific colour map" initiative

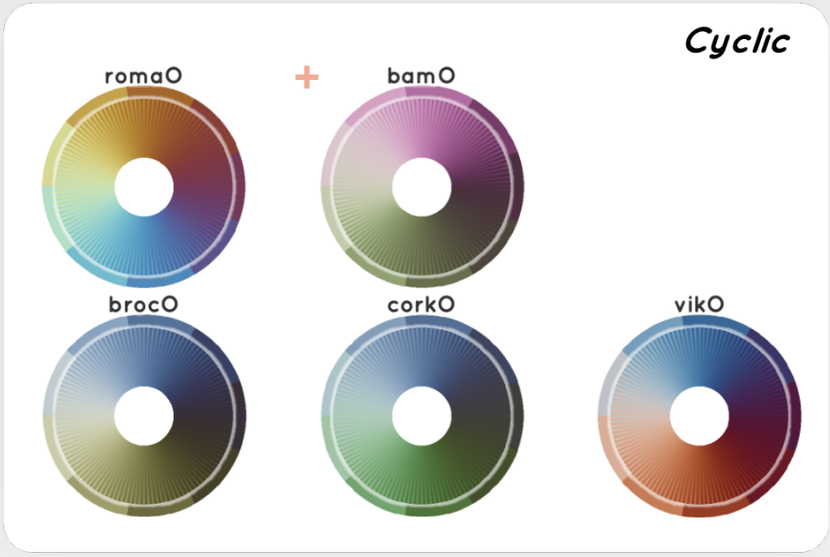


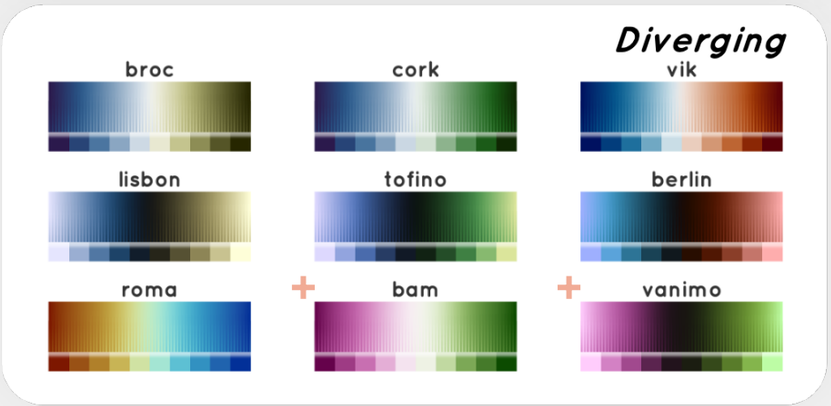
Fabio **Crameri** - Grace E. **Shephard** - Philip J. **Heron**

Scientific colour maps 7.0









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www.fabiocrameri.ch

Scientific Colour Maps

Download

Fair.

Perceptual uniform
colour gradients
leave no room to visually
tweak data.

Inclusive.

Colour-vision deficiency
friendly colour combinations
are readable by everyone who
can see.

Effective.

Perceptually ordered
colour gradients
are intuitively readable.

Professional.

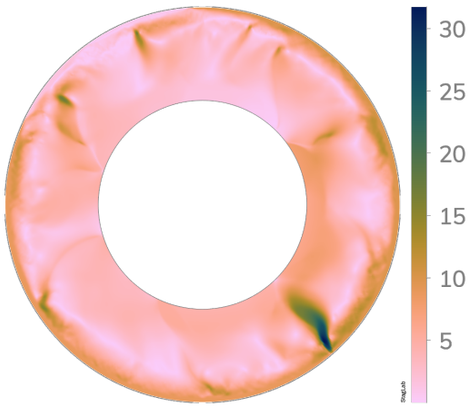
Citable and reproducible
colour maps
including scientific
diagnostics.

Available.

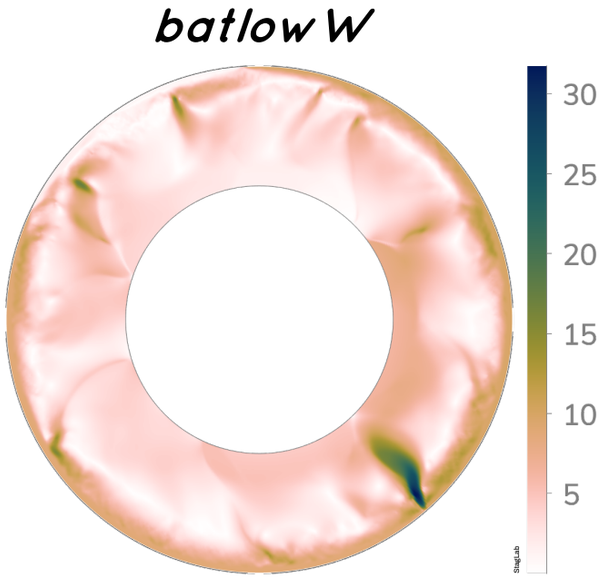
Open-source colour-map
file formats
for every major
visualisation tool.

Read more

Scientific
Colour Maps



vs.

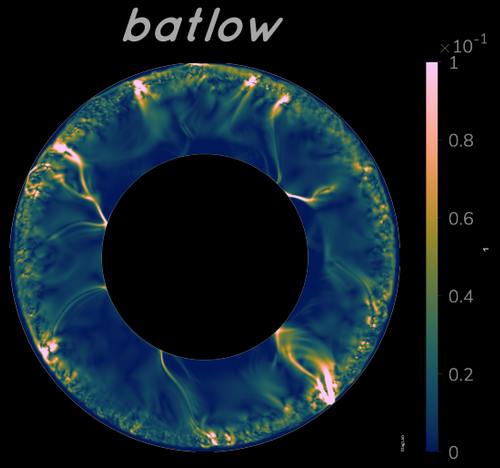


White-ended batlow

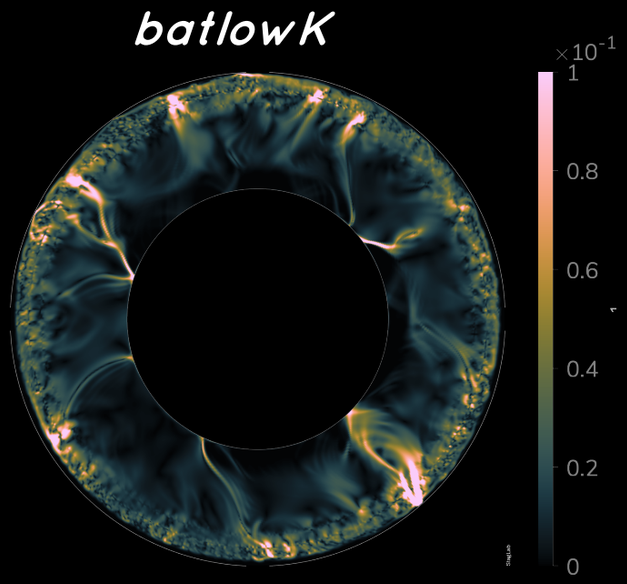
Version 7.0

New additions

Visually more intuitive
lower data limit provides more
focus to high values



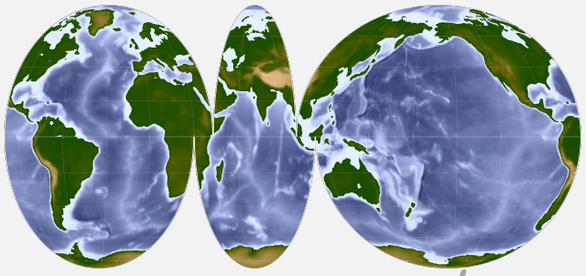
vs.



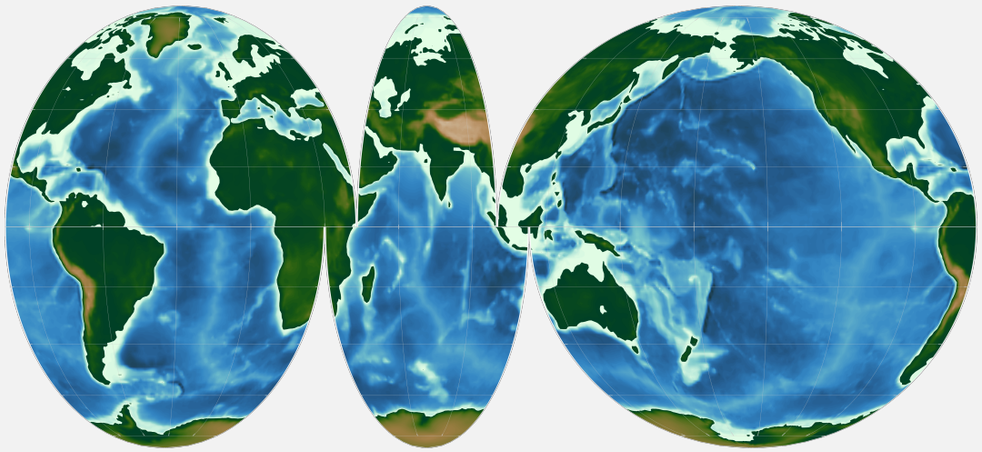
Black-ended batlow

Version 7.0

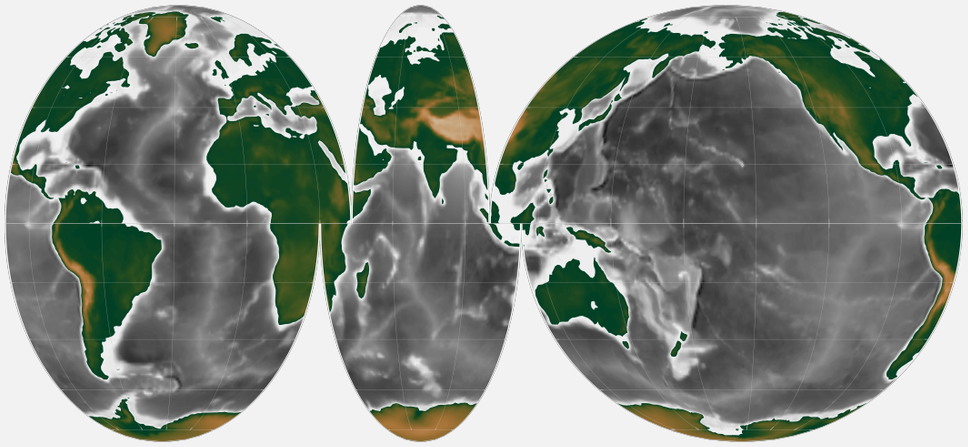
New additions



oleron



bukavu



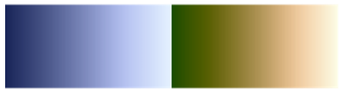
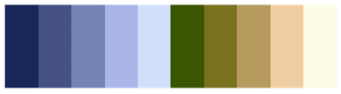
fes

Bathymetry and topography represented fairly and intuitively.

Scientific Colour Maps

The complete suite

Type

Class	Continuous	Discrete	Categorical
Sequential	batlow 	batlow$_{10}$ 	batlowS 
Diverging	roma 	roma$_{10}$ 	
Multi-sequential	oleron 	oleron$_{10}$ 	
Cyclic	romaO 	romaO$_{10}$ 	

Crameri et al. (2020, Nature Comms.)

Scientific Colour Maps

What are categorical colour maps?

Built-in software versions

StagLab 3.0 and later

GMT 6.0 and later

TopoToolbox 2.2 and later

SubMachine

Geoscience ANALYST 2.80 and later

Igor Pro 9.0 and later

XMapTools 3.4.1 and later

Python Pip and Anaconda package

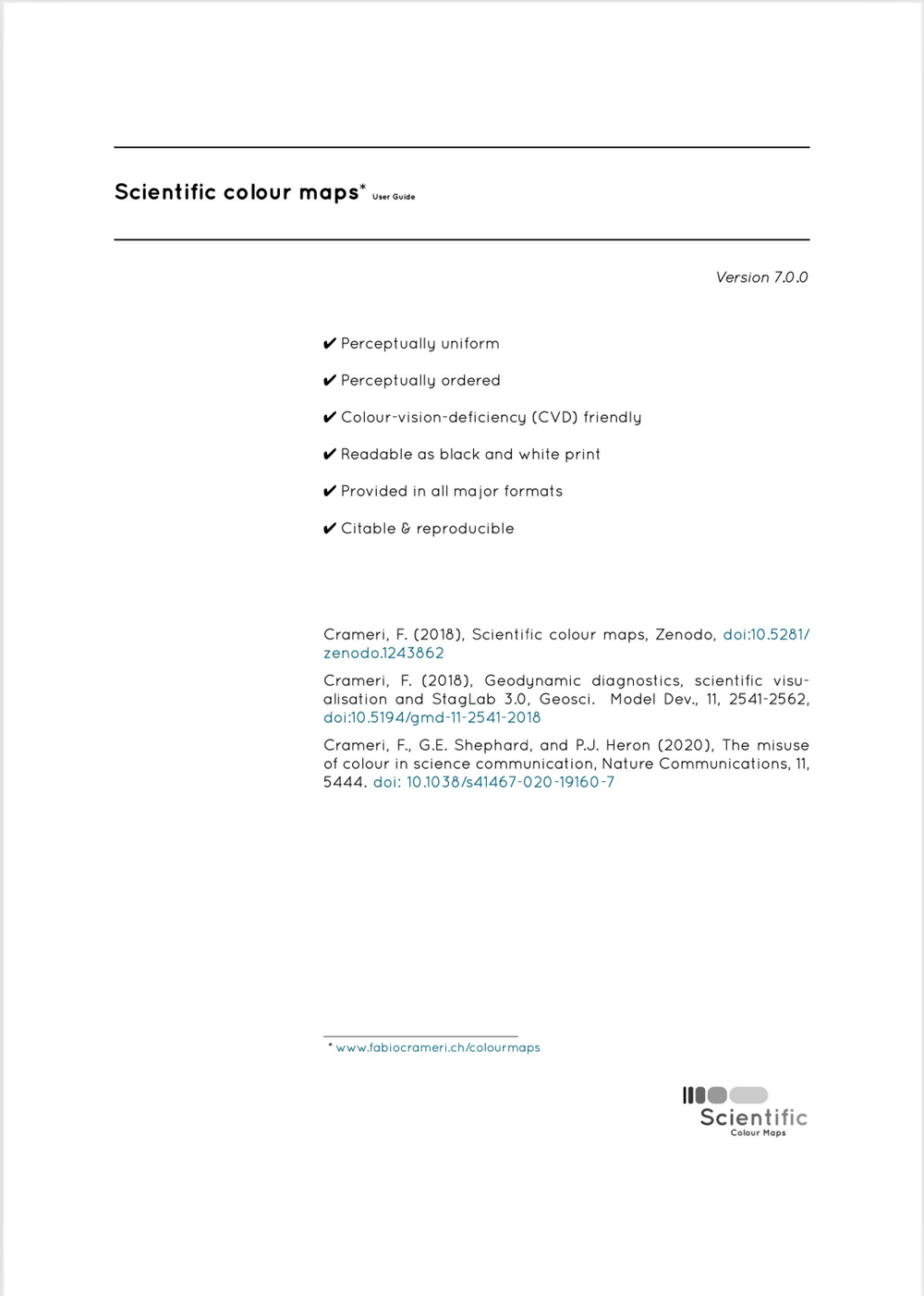
R CRAN package

MatLab FileExchange App

Scientific
Colour Maps

Technical user guide

Download



Scientific colour maps* User Guide

Version 7.0.0

- ✔ Perceptually uniform
- ✔ Perceptually ordered
- ✔ Colour-vision-deficiency (CVD) friendly
- ✔ Readable as black and white print
- ✔ Provided in all major formats
- ✔ Citable & reproducible

Crameri, F. (2018), Scientific colour maps, Zenodo, doi:10.5281/zenodo.1243862

Crameri, F. (2018), Geodynamic diagnostics, scientific visualisation and StagLab 3.0, Geosci. Model Dev., 11, 2541-2562, doi:10.5194/gmd-11-2541-2018

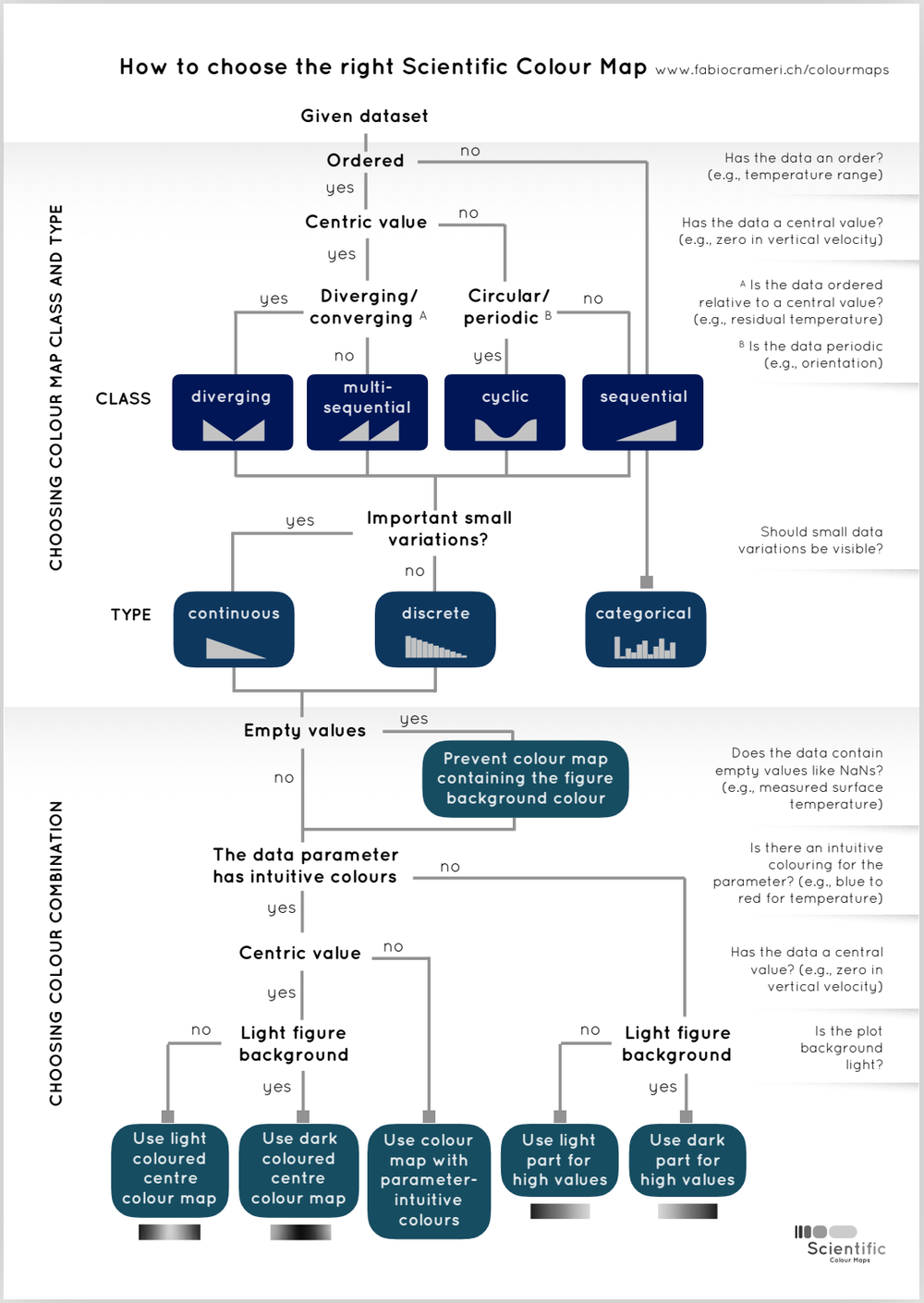
Crameri, F., G.E. Shephard, and P.J. Heron (2020), The misuse of colour in science communication, Nature Communications, 11, 5444. doi: 10.1038/s41467-020-19160-7

* www.fabiocrameri.ch/colourmaps

Scientific Colour Maps

Scientific Colour Maps

Flow chart for professional use



Crameri et al. (2020, Nature Comms.)

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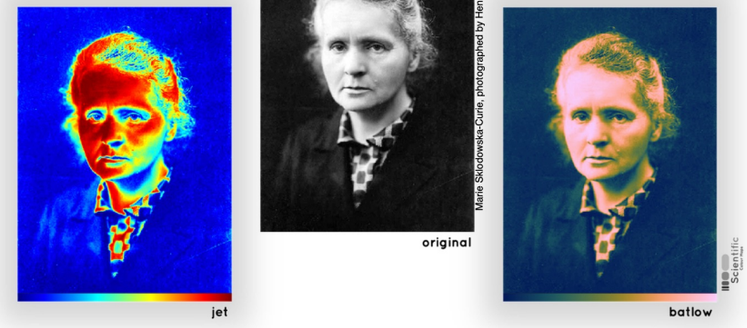
Outreach poster

Download

Scientific colour maps

A “scientific colour map” uses a methodology that **prevents data distortion**, offers **intuitive colouring**, and is **accessible for people with colour-vision deficiencies**. However, most scientists use colour maps that distort data through uneven colour

- ✓ Intuitive
- ✓ Distortion free
- ✓ Inclusive
- ✓ Freely available

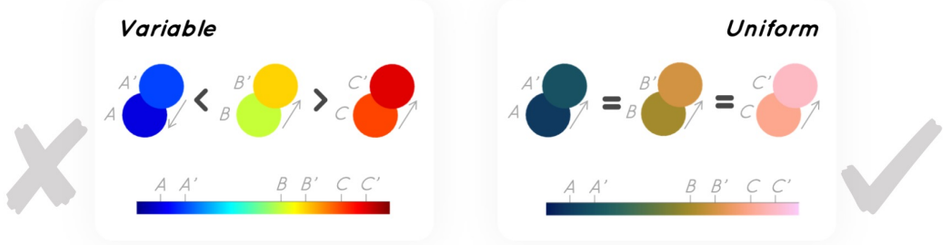


For every figure, think... is it scientific?

Your software... look beyond the default!

Your poster... accessible to the colour blind?

Your peers... say ‘no’ to rainbow!



Incremental colour contrast

For maps and more

www.fabiocrameri.ch

Download the paper

Crameri et al. (2020, Nature Comms.)

Scientific Colour Maps

Visualisation lecture



Watch

Scientific
Colour Maps

The community

Clint Conrad
Chad Greene
Mark Wieczorek
Matteo Albano
Sean Trim
Anthony Jamelot
Casper Pranger
George Edward Campbell
Andy Emery
Alexis Plunder
Christophe Leterrier
Benjamin Witschas
Krister Stræte Karlsen
Kirstie Wright
Steven Reddy
Philippe Rivière
Craig Williams
Callum Rollo
Emilia from twitter
Jennifer Levett
Pierre Lanari
Thomas Lin Pedersen
Sam Hatfield
Paul Wessel
Patrick Brockmann
Wolfgang Schwanghart
Thomas Morrow

...and
the many more
promoters & users of
Scientific colour maps!

Scientific
Colour Maps

Exclaimer

www.fabiocrameri.ch/colourmaps

#UseBatlow

FAQs

Crameri, F. (2020).
Scientific colour maps. Zenodo. http://doi.org/10.5281/zenodo.1243862

Crameri, F., G.E. Shephard, and P.J. Heron (2020),
The misuse of colour in science communication, Nature Communications, 11, 5444. https://doi.org/10.1038/s41467-020-19160-7

Crameri, F. (2018),
Geodynamic diagnostics, scientific visualisation and StagLab 3.0, Geosci. Model Dev., 11, 2541-2562, https://doi.org/10.5194/gmd-11-2541-2018

Crameri, F. (2017),
The Rainbow Colour Map (repeatedly) considered harmful, edited by G.E. Shephard, EGU-Geodynamics Blog (Link)

The Scientific colour map initiative is an unfunded pro-bono project.
It has been initiated, and is led, by scientists in non-permanent positions.

– all support is welcome!

Click on us! >

Fabio, *Grace*, and *Phil*



Scientific Colour Maps