



Taking FAIR and open science to the field

The evolution of the PFTC field course

Tanya Strydom and Aud H. Halbritter
109 PFTC organizers and participants

@PFTCourses
@audhalbritter
@TanyaS_08

UNIVERSITY OF BERGEN





The PFTC experience

<p>MY EXPECTATIONS FOR PFTC WERE SIMPLE...</p> <p>that's me</p> <p>goals</p> <p>SKILLS</p> <p>THEORY</p> <p>FRIENDS</p>	<p>I. THEORY – AND THEN SOME</p> <p>This is something we expect at the end of the course</p> <p>scribbling</p> <p>Why we need to document our data</p>	<p>2. ECOLOGICAL SKILLS</p> <p>THE TRAITSWHEEL™ ENSURED STANDARDISED DATA COLLECTION, CURATION AND DOCUMENTATION</p>
<p>...BUT IN REALITY I ENDED UP BRINGING HOME A LOT MORE</p> <p>TIDYVERSE</p> <p>furious typing</p> <p>Responsible and reproducible coding 101</p> <p>Github</p>	<p>ALONG WITH THEORY WE WERE TAUGHT PEST PRACTICES IN REPRODUCIBILITY AND DATA DOCUMENTATION</p> <p>I think we have everything we need to do some cool science</p> <p>SKILLS</p> <p>ALUMNI NETWORK</p> <p>DATA DOCUMENTATION OWNERSHIP</p> <p>FAIR SCIENCE</p> <p>THEORY</p>	<p>3. NEW WORKFLOWS</p> <p>LEARN ABOUT OPEN SCIENCE SPACES</p> <p>...and then we just push your commit to GitHub.</p> <p>little gasp of awe</p>
<p>WE LEARNT ABOUT REPRODUCIBLE WORKFLOWS (AND BEST PRACTICE) BY DOING</p>	<p>4. MAKE FRIENDS; DO SCIENCE</p> <p>THE COLLEGIAL PHILOSOPHY EMPHASISED THAT SCIENCE IS A COMMUNITY EFFORT</p>	<p>HAVING SOMEONE HOLD YOUR HAND WHEN VENTURING INTO THE 'SCARY' WORLD OF OPEN SCIENCE HELPS</p> <p>LAW</p>



Why did it work?

SYSTEMATIC DATA
CURATION AND
DOCUMENTATION

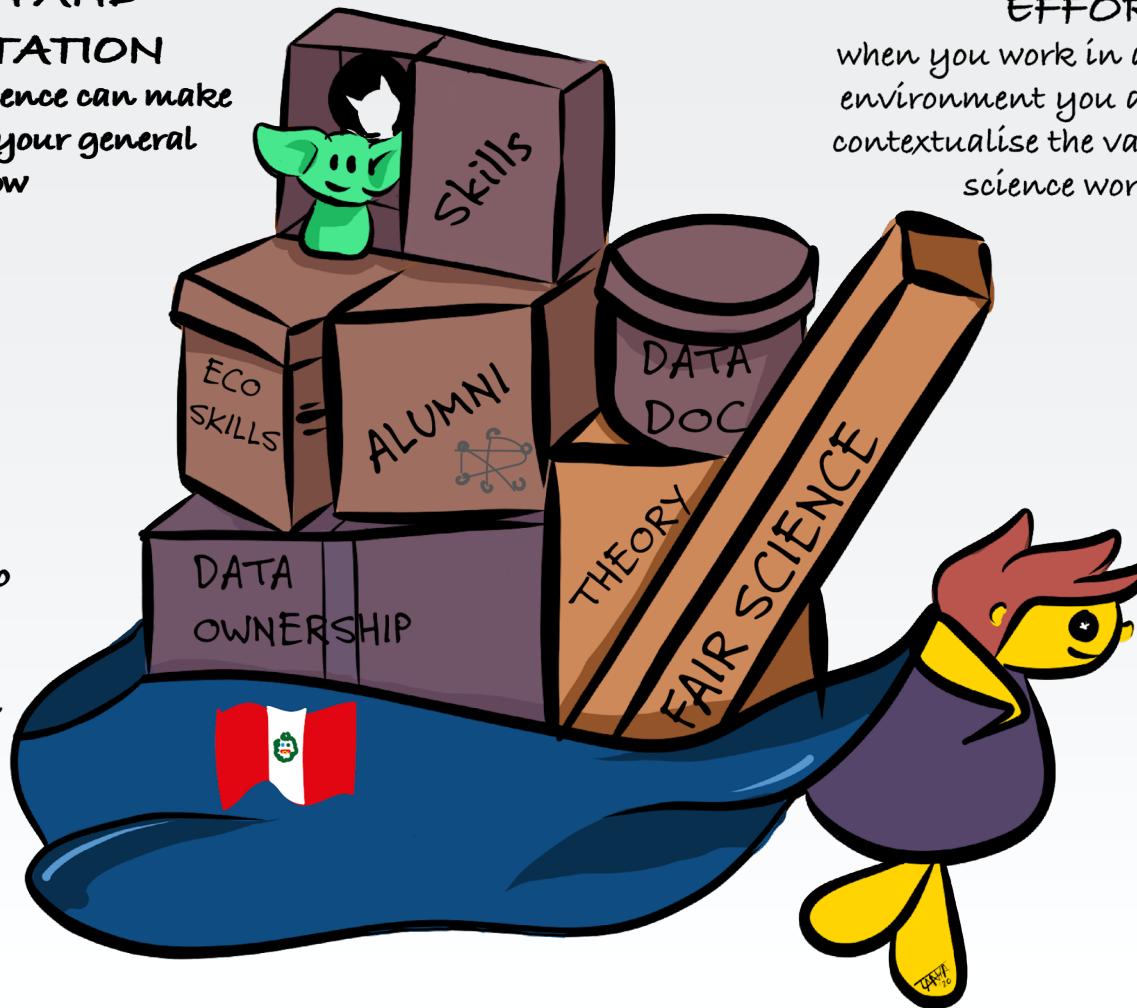
'seeing' how open science can make
up a large part of your general
workflow

LEARNING
BY
DOING

having someone there to
hold your hand and
introduce you to
'bite-sized' bits of open
science

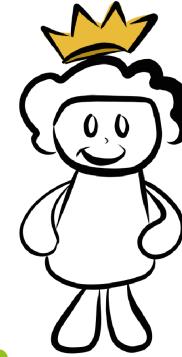
SCIENCE IS A
COMMUNITY
EFFORT

when you work in a collaborative
environment you appreciate and
contextualise the value of an open
science workflow

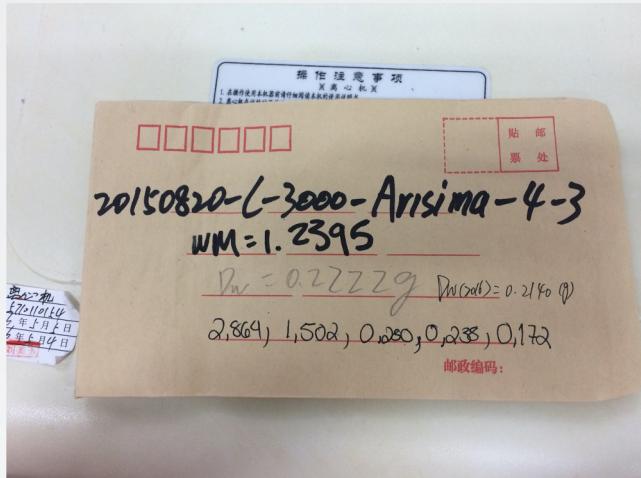
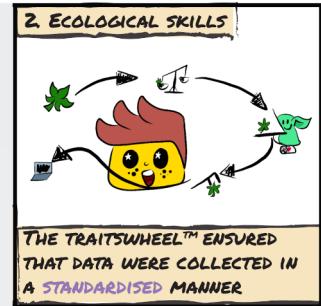


FAIR Science

Learning curve



Systematic data collection and curation and documentation

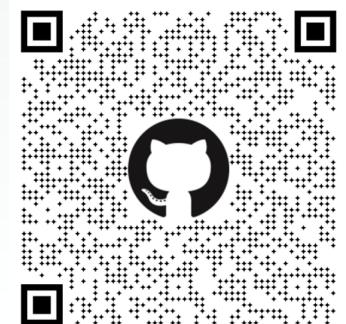


COLLECTION DAY:
SITE:
ELEVATION: m.a.s.l.
GENUS:
SPECIES:
PROJECT: Trait Sean Drone
EXPERIMENT:
PLOT_ID:
INDIVIDUAL_NR:
PLANT_HEIGHT (cm):
BULK - NR LEAVES: LENGTH (cm):
WET_MASS (g):
LEAF SCANNED:
LEAF_THICKNESS (mm): 1 2 3
DRYMASS (g):
DATA ENTERED:

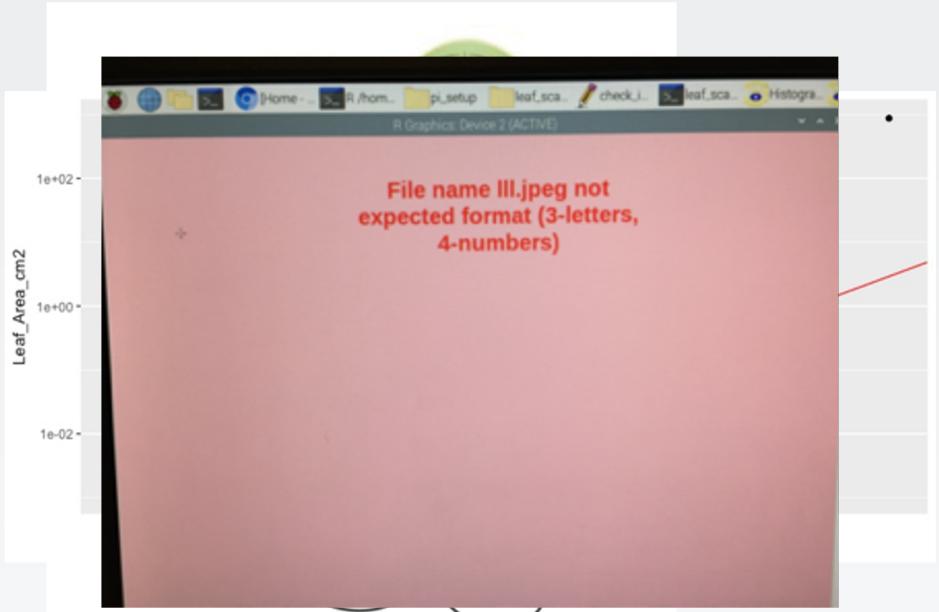
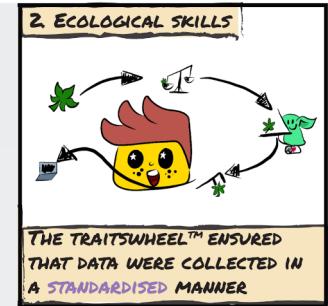
ABC1234



R code on GitHub
R package: baRcodeR

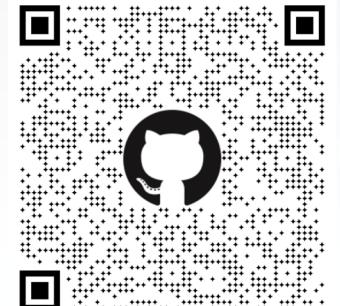


Systematic data collection and curation and documentation



Rcode on GitHub
R package: pi setup

Rcode on GitHub
ImageJ, R package: LeafArea





Research based education

- Education embedded in 'real' research (research context)
- Learning by doing research (research skill)



Using tools like a scientist



Plant-Functional-Trait-Course / PFTC_ChinaTutorial

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

master 1 branch 0 tags Go to file Add file Code

juliachacon Merge pull request #1 from richardjtelford/master ... ae66060 on 4 Mar 87 commits

community/R Add "load_comm" and "load_subsurfcomm" functions. 7 months ago

hidden remove unused instructions to download 7 months ago

map two figures for the "README.md" 7 months ago

.gitignore ignore html 7 months ago

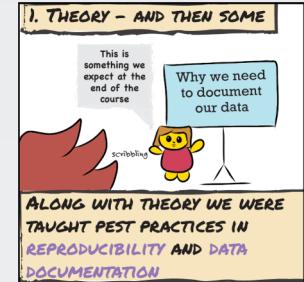
About Tutorials for working on PFTC's data

Readme

Releases No releases published Create a new release



Document like a scientist



Mountain Forum 2015

Mountain Surface Processes and Environmental Changes

Chengdu/Mt. Gongga, China, 17-29 August 2015

PFTC3_2018 & Puna_ Readme

This file describes the projects, project teams, rules for data usage partners and storage, experimental design, data, datasets, and anything else you might or might not want to know about PFTC3 Peru and the Puna project!

PFTC4_Data_Documentation_Readme.txt

Plant Functional Traits: 4 - Svalbard Readme

This file describes the projects, project teams, rules for data sharing among partners and storage, experimental design, data, datasets, and anything else you might or might not want to know about PFTC3 Peru and the Puna project!

SCIENTIFIC DATA

OPEN
DATA DESCRIPTOR

Check for updates

Plant traits and vegetation data from climate warming experiments along an 1100 m elevation gradient in Gongga Mountains, China

Vigdis Vandvik^{1,2}, Aud H. Halbritter^{1,2}, Yan Yang^{1,3}, Hai He⁴, Li Zhang³, Alexander B. Brummer^{1,5}, Kari Klanderud^{1,6}, Brian S. Maitner^{1,7}, Sean T. Michaletz^{1,8}, Xiangyang Sun³, Richard J. Telford^{1,9}, Genxu Wang³, Inge H. J. Althuizen^{1,2}, Jonathan J. Henn^{1,9}, William Fernando Erazo Garcia¹, Ragnhild Gya^{1,2}, Francesca Jaroszynska^{1,2}, Blake L. Joyce¹⁰, Rebecca Lehman¹¹, Michelangelo Sergio Moerland^{12,13}, Elisabeth Nesheim-Hauge^{1,12}, Linda Hovde Nordås¹, Ahui Peng^{1,3}, Claire Ponsac¹⁴, Lorah Seltzer^{1,7}, Christien Steyn^{1,15}, Megan K. Sullivan^{1,16}, Jesslyn Tjendra^{1,1}, Yao Xiao^{1,3}, Xiaoxiang Zhao³ & Brian J. Enquist^{1,7}

Functional trait data enhance climate change research by linking climate change, biodiversity response, and ecosystem functioning, and by enabling comparison between systems sharing few taxa. Across four sites along a 3000–4130 m a.s.l. gradient spanning 5.3 °C in growing season temperature in Mt. Gongga, Sichuan, China, we collected plant functional trait and vegetation data from control plots, open top



Science is a community effort

- Accessible data and documentation
- Facilitate a collaborative environment
 - Data ownership agreement
 - Alumni network
 - Manuscript proposal registration



SCIENTIFIC DATA

OPEN

DATA DESCRIPTOR

Plant traits and vegetation data from climate warming experiments along an 1100 m elevation gradient in Gongga Mountains, China

Vigdís Vandvik^{1,2,3}, Aud H. Halbritter^{1,2}, Yan Yang^{3,4}, Hai He⁵, Li Zhang¹, Alexander B. Brummer^{1,5}, Kari Klanderud^{1,6}, Brian S. Maitner^{1,7}, Sean T. Michaletz¹, Xiangyang Sun¹, Richard J. Telford^{1,8}, Genxu Wang¹, Inee H. J. Althuizen^{1,2}, Jonathan J. Henn^{1,9}, William Fernando Frazão Garcia¹.

PFTC5 Plant Functional Traits Course, Peru, 2020 Data Sharing, Usage and Authorship Agreement

This Data Sharing Agreement regulates data management, availability, u

A screenshot of a website for the PFTC5 Plant Functional Traits Course. At the top, there is a navigation bar with links for Home, About PFTC, Course organization, Publications, Resources, Alumni (which is highlighted in blue), and Contact. Below the navigation bar, there is a sidebar with links for Alumnus network, Course material and protocols, Manuscript overview, Manuscripts in progress, and Video tutorials. A QR code is visible in the bottom right corner of the page.

Protected: Manuscript overview

A screenshot of a digital platform for managing manuscript proposals. At the top, there is a header bar with the text "Proposed Manuscripts". Below the header, there is a table with the following columns: "Manuscripts in the Pipeline", "Status tags", and "Developing". The "Manuscripts in the Pipeline" column contains rows for "Title" (with a value of "Title"), "Lead Author(s)" (with a value of "Lead Author(s)"), "Status" (with a value of "Status"), and "Notes" (with a value of "Notes"). The "Status tags" column contains a single row with the value "Developing".



OPEN ACCESS

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Sciences and Technology, China

Intraspecific Trait Phenotypic Plasticity in Plant Species Change

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In a rapidly changing climate, alpine plants may persist by adapting to new conditions.

However, the rate at which the climate is changing might exceed the rate of adaptation

Title: Next generation field courses: integrating Open Science and online learning

under review

From a crisis to a new way of doing science

COVID-19



Julia Chacón Labell

Aud Halbritter, Sara

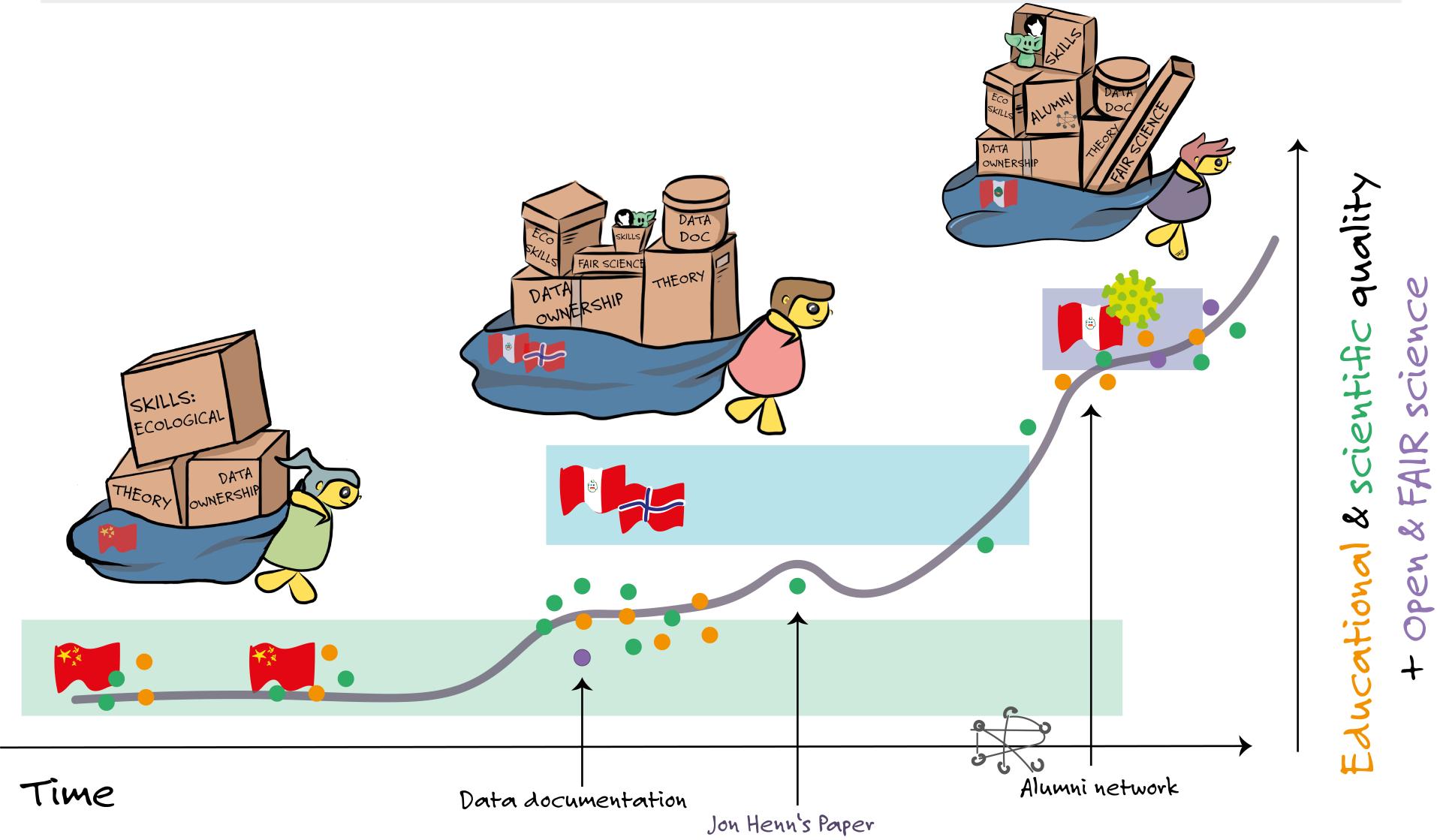
Tanya Strydom Vigdís Vandvik, Sonya Geange

Abstract

The COVID-19 crisis has forced researchers in Ecology to change the way we work almost overnight. Nonetheless, the pandemic has provided us with several novel components for a new way of conducting international Science. In this perspective piece, we summarize eight central

under review







Thank you

Adam Ccahuana, Adam Chmurzynski, Agustina Barros, Ahui Peng, Alexander Byers Brummer, Alexander Sæle Vågenes, Alyssa Smith, Anders Isaksen, Andrea Palomino Cardenas, Andrea Sánchez-Tapia, Bamsemums, Bárbara Javiera Seaman Espinosa , Barbara M. Neto-Bradley, BB8, Blake Lee Joyce, Brian Enquist, Brian Salvin "BS" Maitner, Casper Christiansen, Christien Steyn, Christine Pötsch, Claire Ponsac, C-3PO, Dagmar Egelkraut, Darth Vader, Eleanor Thomson, Elisabeth Nesheim Hauge, Elke Jongejans, Erickson Giomar Urquiaga Flores, Erik Kusch, Eugenia Sanchez Diaz, Eva Lieungh Eriksen, Fei Ran, Fernanda Chiappero, Fiorella Gonzales, Francesca Jaroszynska, Frida Knoop, Hanna Lee, Hilde Rui, Iláíne Silveira Matos, Imma Oliveras, Inge Althuizen, Jess Rickenback, Jesslyn Tjendra, Jhon del Aguila Pasquel, Jhonatan Sallo Bravo, Jocelyn Navarro, **Jonathan Henn**, Jonathan von Oppen, Josef Garen, Joseph Gauard, Julia Chacon, Julia Kemppinen, Kai Lepley, Kari Klanderud, Karolína Pánková, Katrín Björnsdóttir, Kine Blom, Korina Ocampo-Zuleta, Kristine Birkeli, Kristina Kuncová, Laura Jessup, Leonardo Hamachi, Li Zhang, Linda Hovde Nordås, Linn Vassvik, Lohengrin Cavieres, Lorah Patterson, Lorelei Patrick, Lucely Lucero Vilca Bustamante, Mackenzie Lift, Marc Macias-Fauria, Marcus Spiegel, Maria Elisa Pierfederici, Mary Linabury, Matiss Castorena Salaks, Megan Kathleen Sullivan, Michelangelo Sergio Moerland, Mickey Boakye, Miguel Muñoz Mazon, Molly Ng, Natalia L Quinteros Casaverde, Nina Roth, Obi-Wan Kenobi, Paul Efren Santos Andrade, Pekka Niittynen, Pernille Bronken Eidesen, Polly Bass, Ragnhild Gya, Rebecca Lehman, **R**ichard J. Telford, Ruben Roos, Rudi Cruz, R2D2, Samuel Pastor Ploskonka, Sandra Duran, Sara Middleton, Sean Michaletz, Sehoya Cotner, Shuli Chen, Signe Maskell Knudsen, Silje Östman, Siri Vatsø Haugum, Sonya Geange, Tasha-Leigh J. Gauthier, The 80s Mixtape, Trace Martyn, Vanessa Buzzard, Verónica Noemí Zepeda Martínez, Verónica Pinelli, Vigdis Vandvik, Will Johnson, William Farfan-Rios, William García, Xiangyang Sun, Xiaoxiang Zhao, Yadvinder Mahli, Yan Yang, Yao Xiao, Yaoqi Li and Yoda.





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