

*SNEWS @ Neutrino 2020*  
***Outreach & Communication***

**Justin Vasel (he/him)**  
**Andrew Renshaw**

20 June 2020

# Thrusts of engagement

1. Awareness
2. Preparedness
3. Follow-up

## 1273 7. Amateur Astronomer Engagement

1274 The next galactic core-collapse supernova will be a once-in-a-lifetime event. Amateur  
1275 astronomers will play a vital role in identifying and observing the optical component of  
1276 the explosion in real time when it appears in the sky. Because SNEWS is designed to  
1277 provide an early warning of the appearance of such an explosion, the interface between  
1278 SNEWS and the astronomical community—and particularly amateur astronomers—is  
1279 critically important. We aim to reinforce these connections and provide the community  
1280 with information and resources to ensure they are ready to receive SNEWS alerts and  
1281 participate in the global effort to spot the optical signal. This outreach effort will  
1282 be guided by three broad thrusts, as described below: awareness, preparedness, and  
1283 follow-up.

## Thrust 1: Awareness

**"How can I contribute to science or make an amazing discovery?"**

*– an amateur astronomer, presumably.*



*"Astronomers can only participate if they know that SNEWS exists."*

## Thrust 2: Preparation

*"..develop and distribute materials to teach subscribers about the information products available within the alerts and how that information will be updated as subsequent observations are made, so that amateur astronomers are able to easily and quickly identify potential supernova candidates associated with a coincident neutrino burst"*

As an astronomer: "Hey, I think I remember this SNEWS thing. This alert seems important. Hmmmm, I wonder how one should search for a supernova with a pair of binoculars..."





## Thrust 3: Follow-up

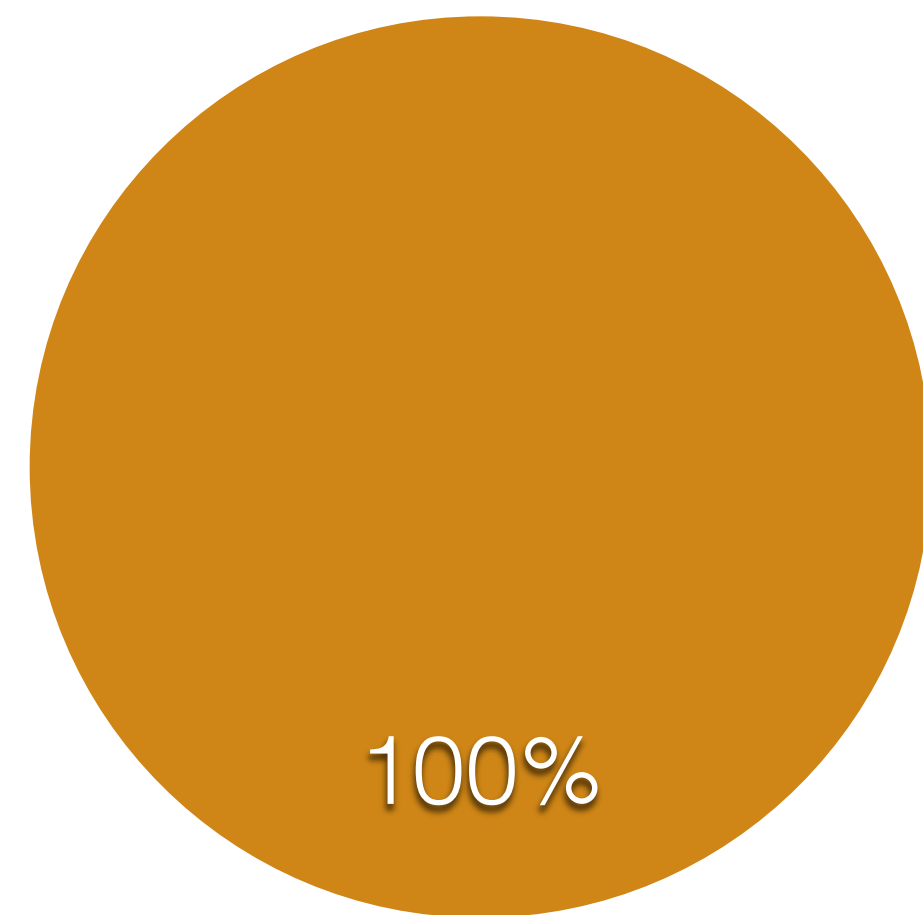
*"Time will be of the essence; it is imperative that clear and simple reporting mechanisms exist and that observers are aware of them."*

As an astronomer: "Ooooooh! I think I found the supernova! ...now what?"

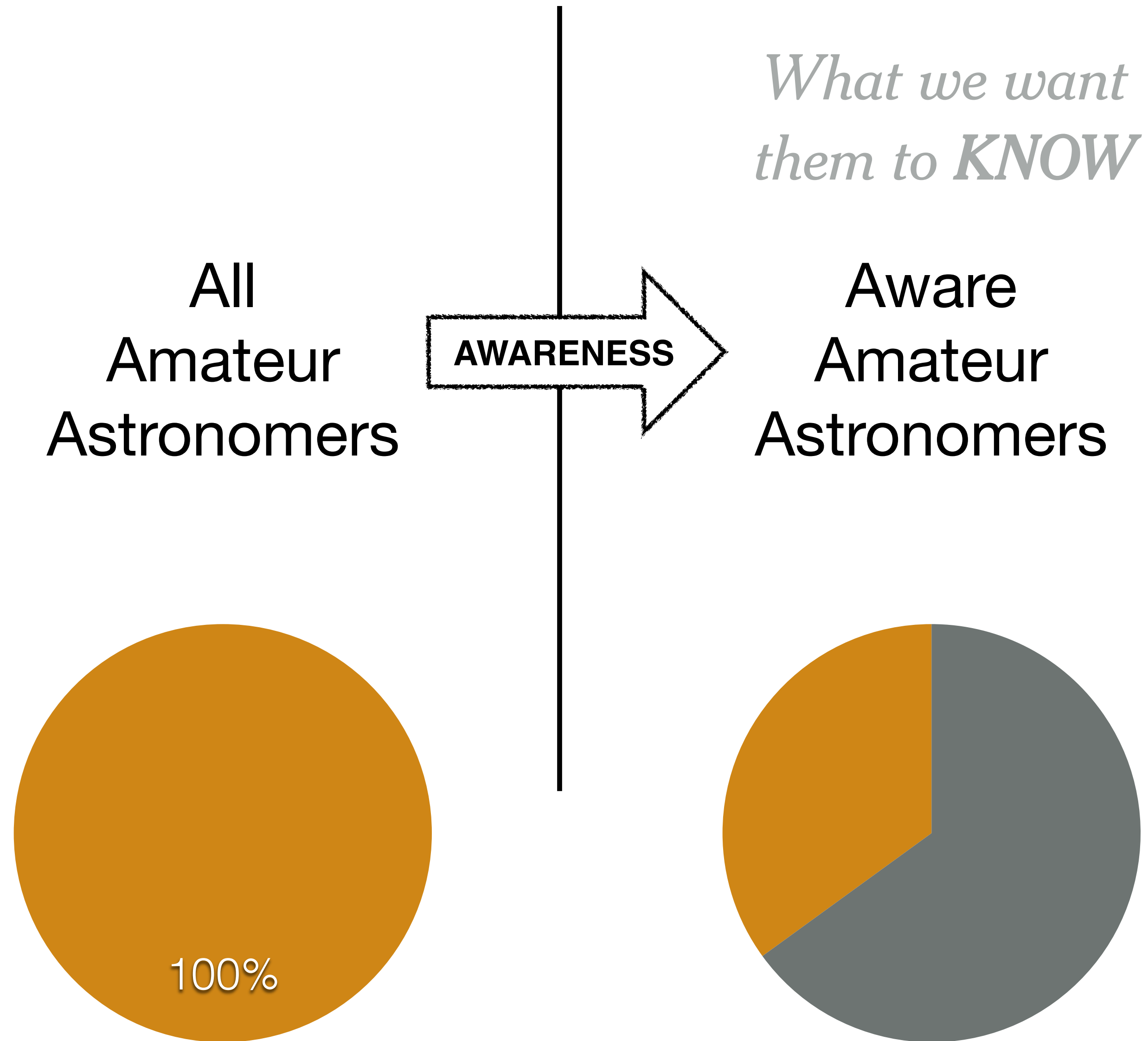


# The Role of "Friction"

All  
Amateur  
Astronomers

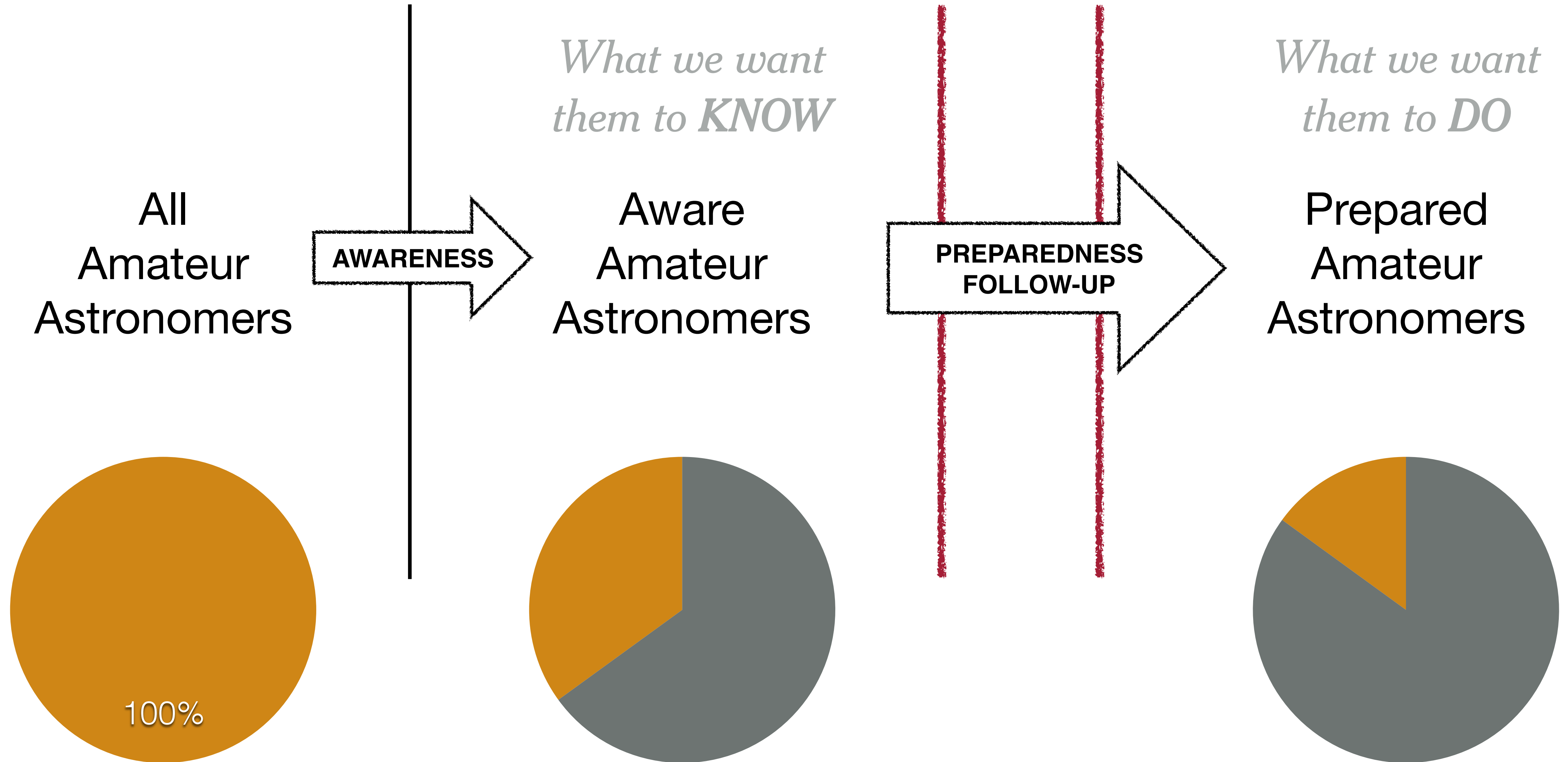


# The Role of "Friction"

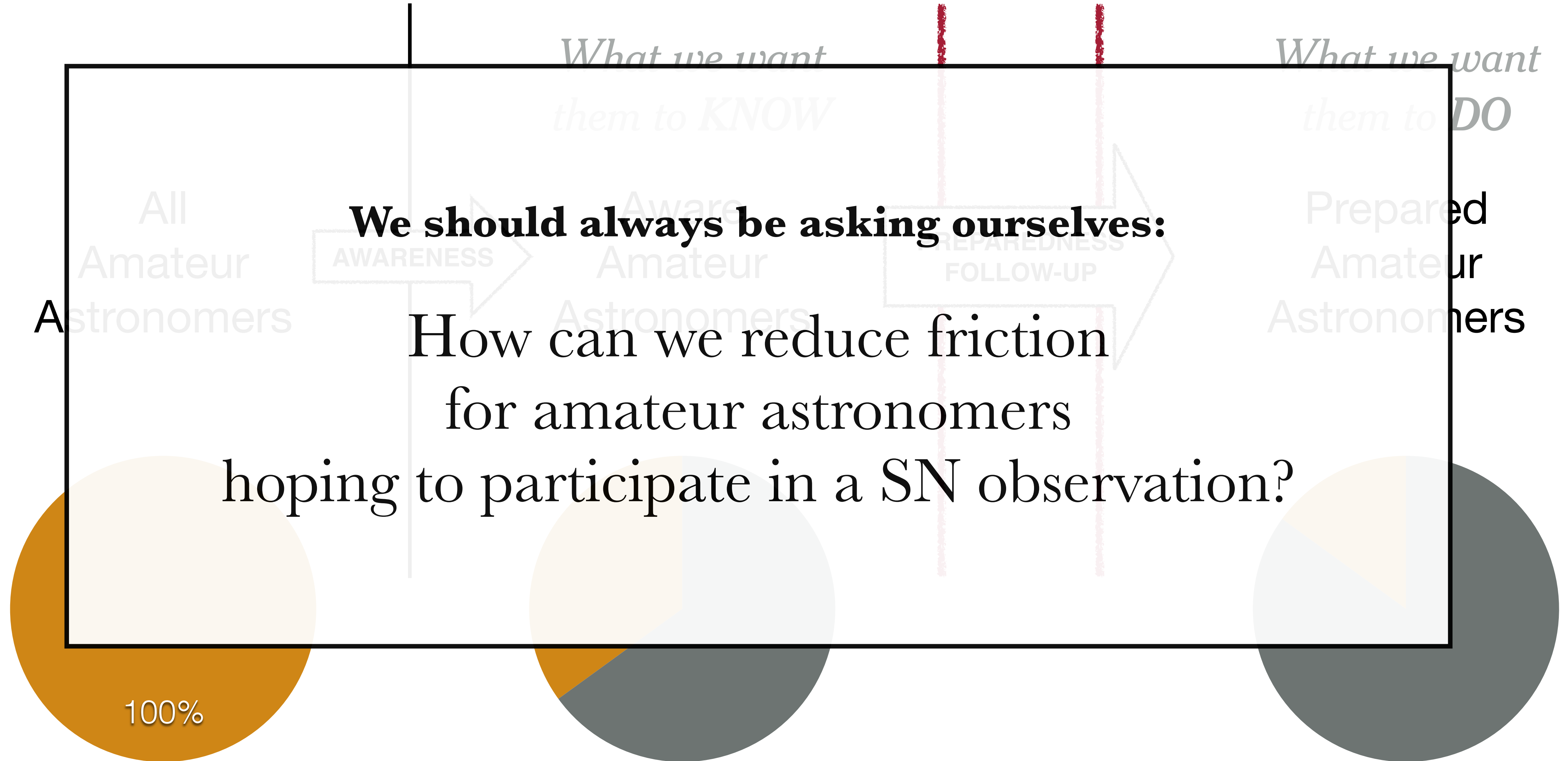


# The Role of "Friction"

# FRICITION







# Our Audience

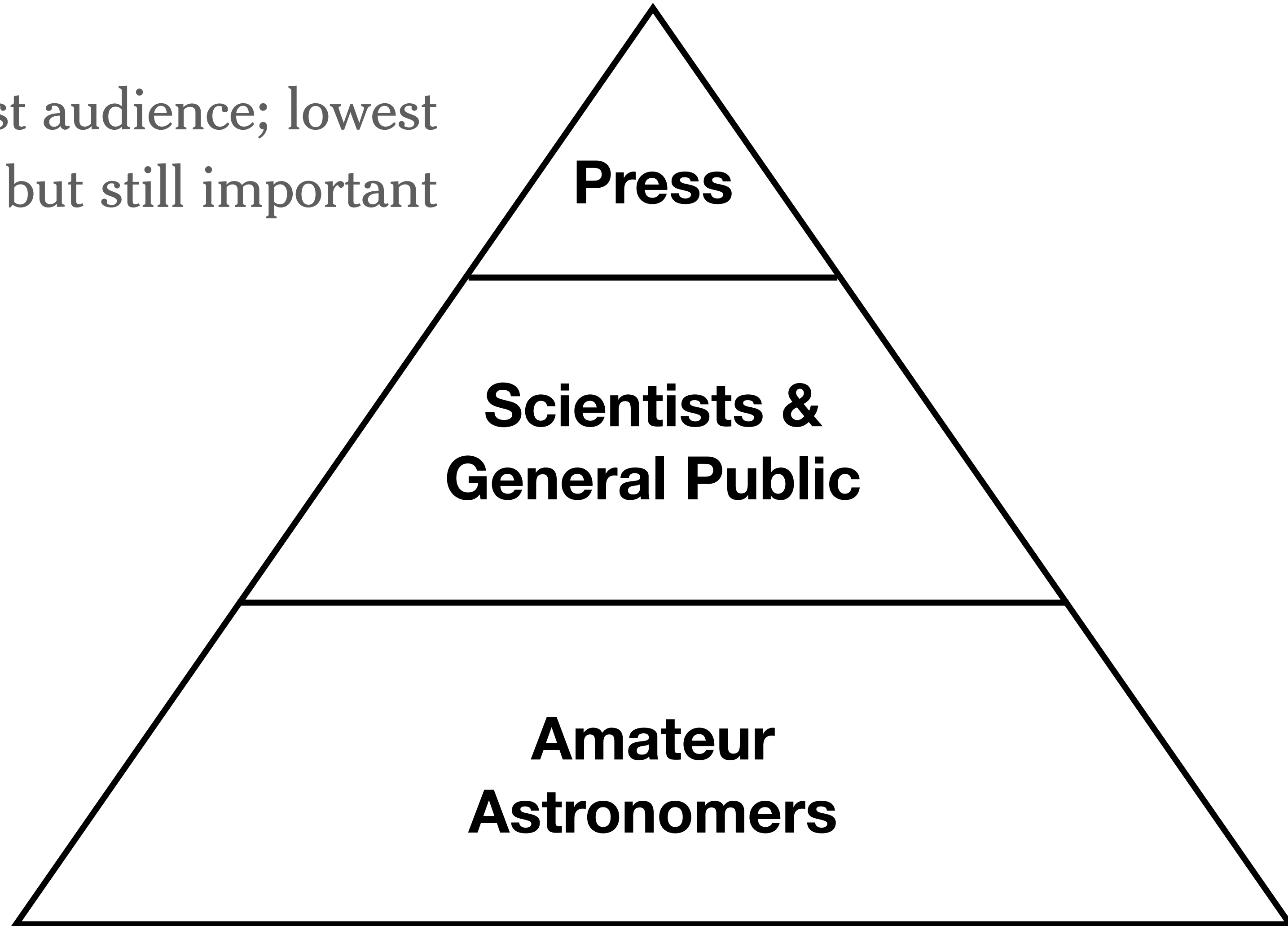
Smallest audience; lowest priority, but still important

**Press**

**Scientists &  
General Public**

**Amateur  
Astronomers**

Largest audience;  
top priority



# Our Audience's Needs

## Key

Done, nearly done, or in progress  
To do next, high-to-medium priority  
To do soon, or when ready  
To do later, low priority

## General Information

*SNEWS background info and history; links to papers; science of supernovae and neutrinos; SNEWS member experiments; upcoming and past presentations; etc...*

## Training Materials

*Links to materials that will help AAs learn strategies/techniques relevant to searching for a supernova in the sky.*

## Quick References

*Concise flow charts or action plans that contain the most pertinent information AAs need from us. How to report an observation, for example.*

## SNEWS data / alert info

*Data/information that is published in the alert should be made available on the website as well.*

## Press Contact Info

### Press Kit

*Press inquiries will be directed to one or several individuals (probably Executive Chairs); prepare materials that can be used for reporters/bloggers to use in their writing.*

# Our Audience's Needs

## Key

Done, nearly done, or in progress  
 To do next, high-to-medium priority  
 To do soon  
 To do later, low priority

	Before Alert	After Alert / Before Confirmation	After Confirmation
Amateur Astronomers	General Information Training Materials	Training Materials Quick References SNEWS data	General Information Training Materials
Scientists & General Public	General Information	General Information	General Information SNEWS data
Press	General Information	General Information Contact Info Press Kit	General Information Contact Info Press Kit



# Design with the target audience in mind

Because we will need to effectively deliver time-sensitive information to our audience, *usability is important.*

## Krug's Three Laws of Usability

1. “Don’t make me think.”
2. “It doesn’t matter how many times I have to click, as long as each click is a mindless, unambiguous choice.”
3. “Get rid of half the words on each page, then get rid of half of what is left.”

From: Krug, S. (2006), Don't Make Me Think: A Common Sense Approach to Web Usability, Berkeley, CA: New Riders





# Design with the target audience in mind — rewriting the site map



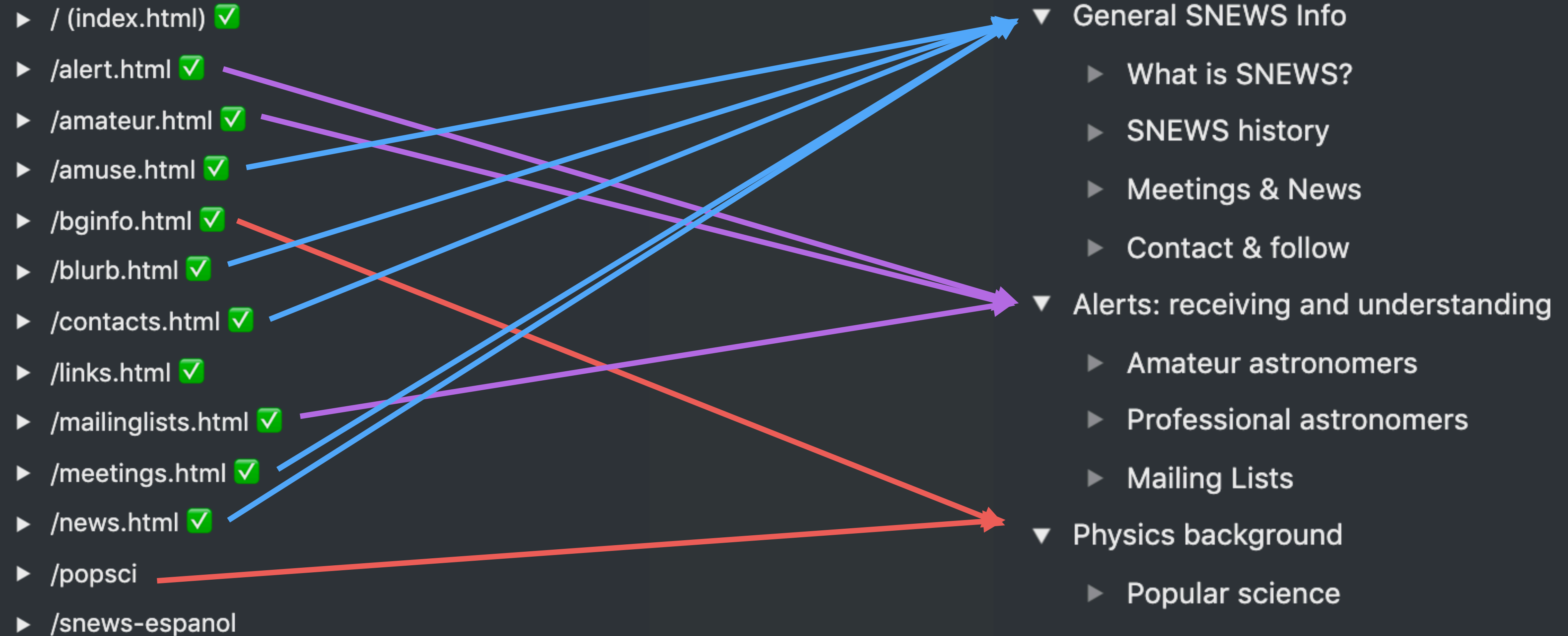
- What is SNEWS?
- SNEWS News
- Background Information
- Getting a SNEWS Alert
- Amateur Astronomers
- Mailing Lists
- SNEWS Working Group Info
- Meetings
- Related Links
- History of Astronomy
- The Name Game
- Contact People

## 1 Version 1 Structure

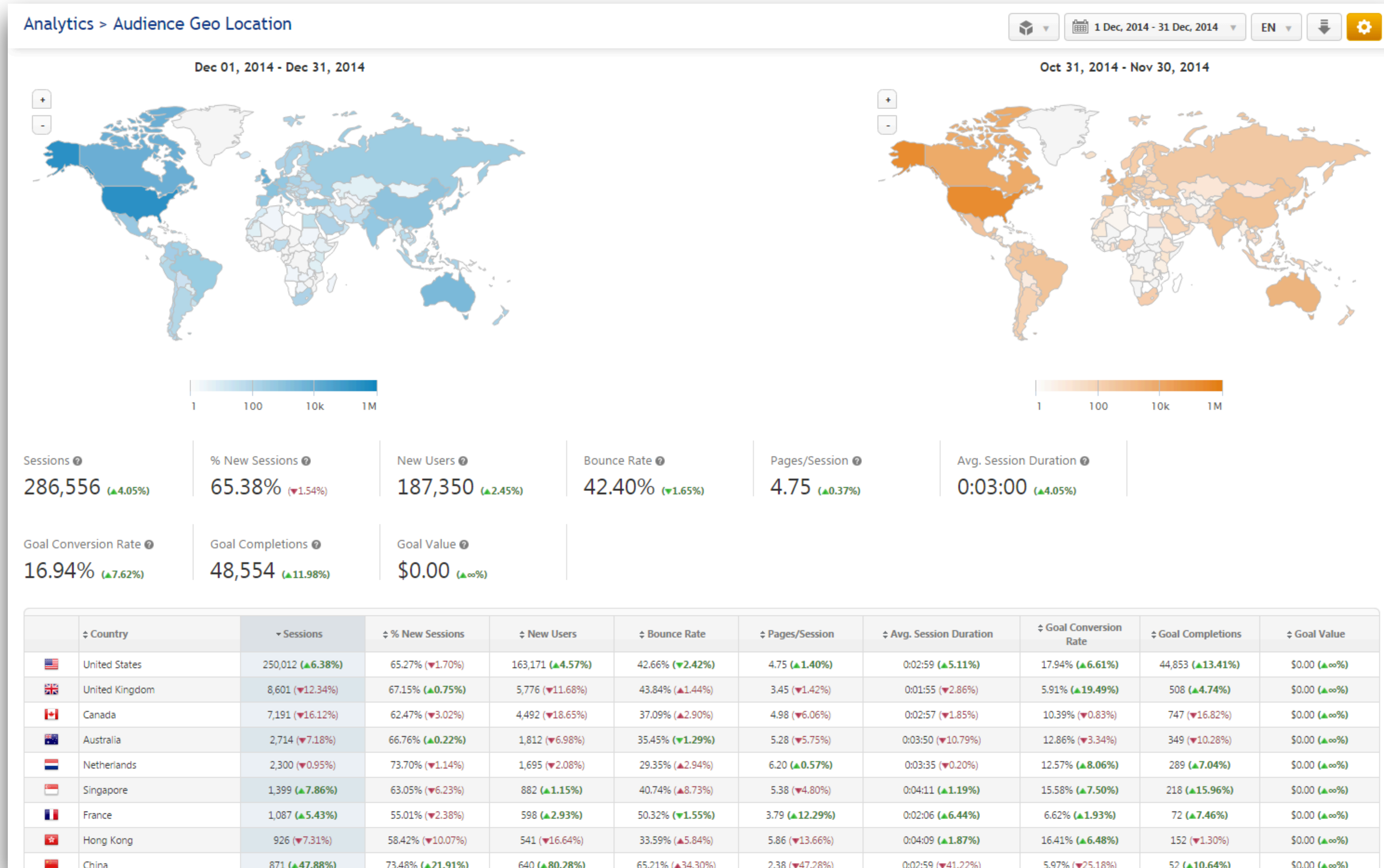
- ▶ / (index.html) ✓
- ▶ /alert.html ✓
- ▶ /amateur.html ✓
- ▶ /amuse.html ✓
- ▶ /bginfo.html ✓
- ▶ /blurb.html ✓
- ▶ /contacts.html ✓
- ▶ /links.html ✓
- ▶ /mailinglists.html ✓
- ▶ /meetings.html ✓
- ▶ /news.html ✓
- ▶ /popsci
- ▶ /snews-espanol

## Version 2 Structure (draft)

- ▼ General SNEWS Info
  - ▶ What is SNEWS?
  - ▶ SNEWS history
  - ▶ Meetings & News
  - ▶ Contact & follow
- ▼ Alerts: receiving and understanding
  - ▶ Amateur astronomers
  - ▶ Professional astronomers
  - ▶ Mailing Lists
- ▼ Physics background
  - ▶ Popular science



# Google Analytics as a proxy for over-served and under-served regions



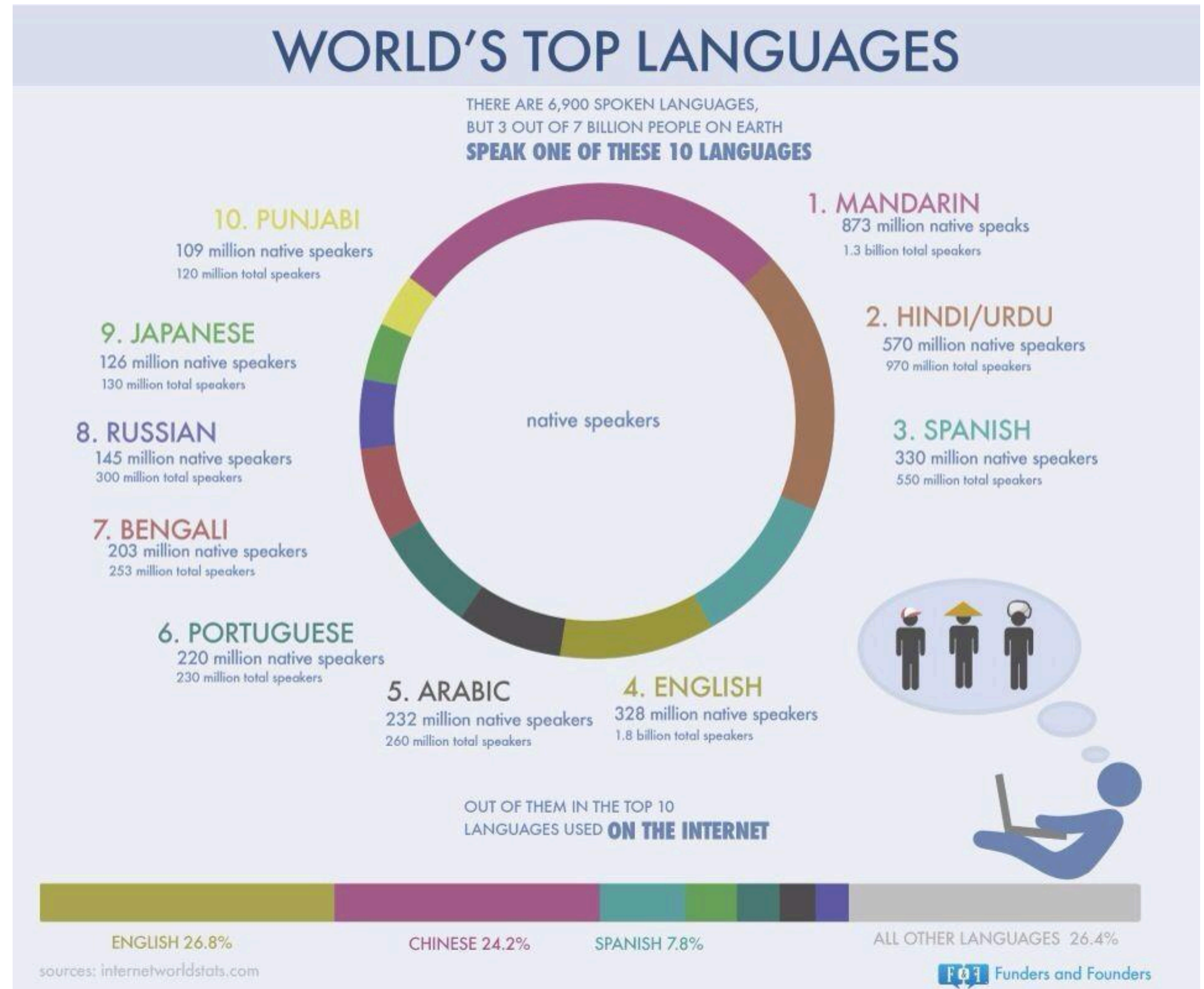


# Language & Localization Support

English is the most widely-spoken language in the world, and the de-facto language of science.

But, there are presumably many non-English-speaking amateur astronomers around the world.

Adding translations to our website will help us reach this audience.





# Language & Localization Support

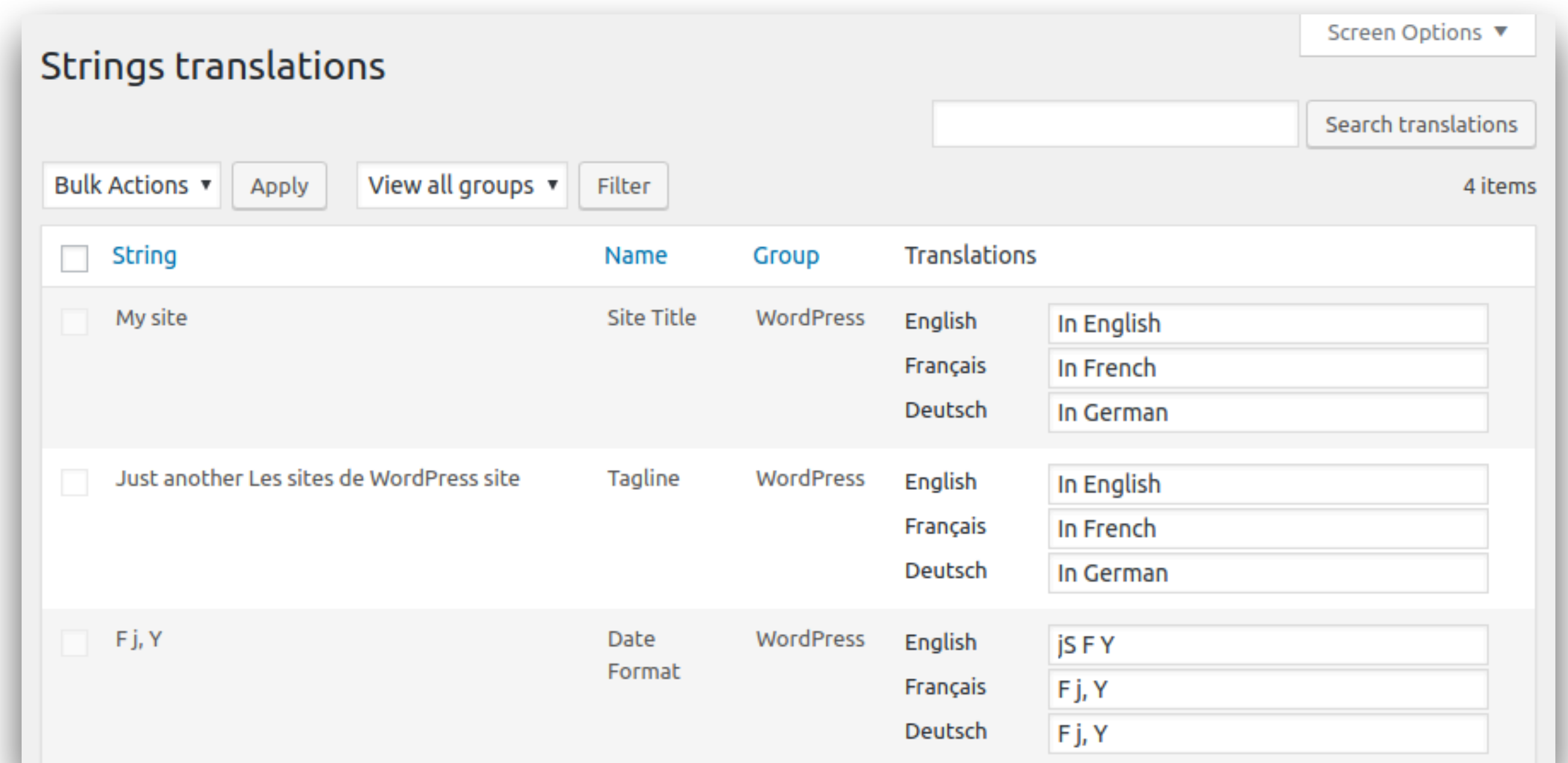
*Polylang Wordpress plug-in does automatic translation; but we should check them.*



Several volunteers so far:

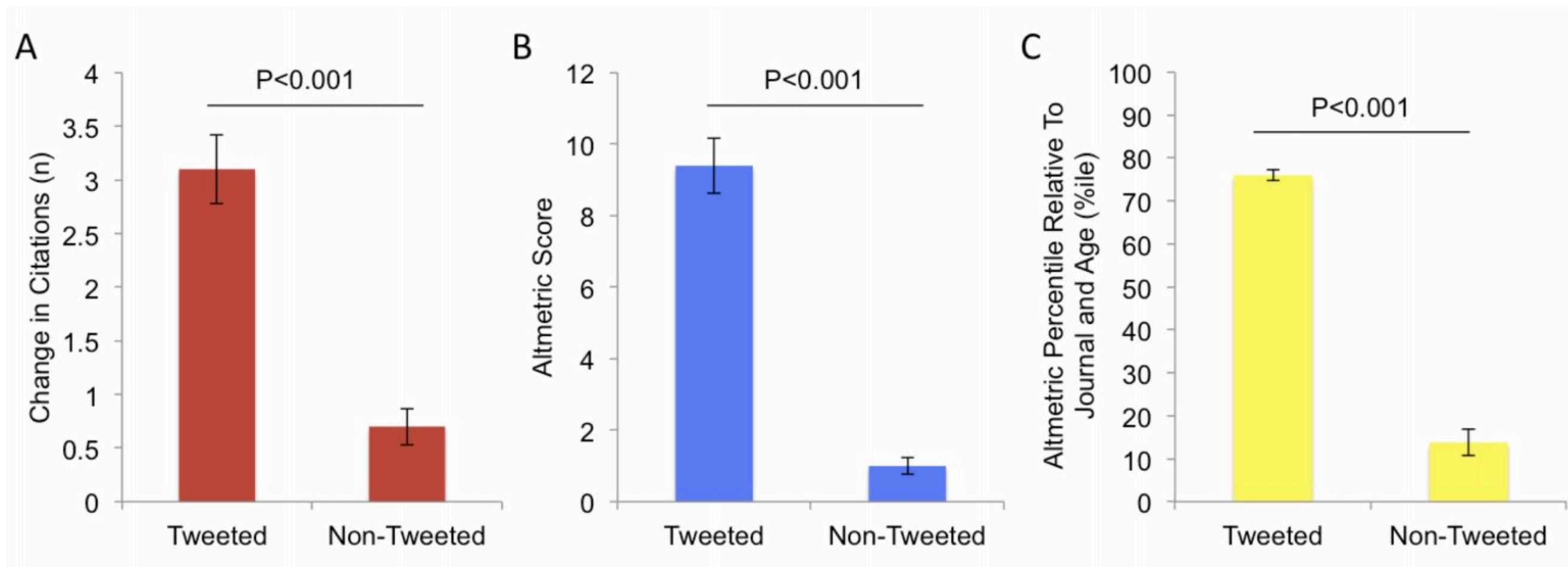
- **German (Jost M., Rafael L.)**
- **Russian (Maxim G.)**
- **Italian (Andrea G.R.)**
- **Spanish (Justin V., non-native)**

Please let me know if you'd like to contribute!



# The Role of Social Media

*Social media, especially Twitter, plays an enormous role in science communication these days.*



## Does Tweeting Improve Citations? One-Year Results From the TSSMN Prospective Randomized Trial

Jessica G Y Luc<sup>1</sup>, Michael A Archer<sup>2</sup>, Rakesh C Arora<sup>3</sup>, Edward M Bender<sup>4</sup>, Arie Blitz<sup>5</sup>, David T Cooke<sup>6</sup>, Tamara Ni Hlci<sup>7</sup>, Biniam Kidane<sup>8</sup>, Maral Ouzounian<sup>9</sup>, Thomas K Varghese Jr<sup>10</sup>, Mara B Antonoff<sup>11</sup>

Affiliations + expand

PMID: 32504611 DOI: [10.1016/j.athoracsur.2020.04.065](https://doi.org/10.1016/j.athoracsur.2020.04.065)

### Abstract

**Background:** The Thoracic Surgery Social Media Network (TSSMN) is a collaborative effort of leading journals in cardiothoracic surgery to highlight publications via social media. This study aims to evaluate the 1-year results of a prospective randomized social media trial to determine the effect of tweeting on subsequent citations and non-traditional bibliometrics.

**Methods:** A total of 112 representative original articles were randomized 1:1 to be tweeted via TSSMN or a control (non-tweeted) group. Measured endpoints included citations at 1-year compared to baseline, as well as article-level metrics (Altmetric score) and Twitter analytics. Independent predictors of citations were identified through univariable and multivariable regression analyses.

**Results:** When compared to control articles, tweeted articles achieved significantly greater increase in Altmetric scores (Tweeted 9.4±5.8 vs. Non-Tweeted 1.0±1.8, p<0.001), Altmetric score percentiles relative to articles of similar age from each respective journal (Tweeted 76.0±9.1%ile vs. Non-Tweeted 13.8±22.7%ile, p<0.001), with greater change in citations at 1 year (Tweeted +3.1±2.4 vs. Non-Tweeted +0.7±1.3, p<0.001). Multivariable analysis showed that independent predictors of citations were randomization to tweeting (OR 9.50; 95%CI 3.30-27.35, p<0.001), Altmetric score (OR 1.32; 95%CI 1.15-1.50, p<0.001), open-access status (OR 1.56; 95%CI 1.21-1.78, p<0.001), and exposure to a larger number of Twitter followers as quantified by impressions (OR 1.30, 95%CI 1.10-1.49, p<0.001).

**Conclusions:** One-year follow-up of this TSSMN prospective randomized trial importantly demonstrates that tweeting results in significantly more article citations over time, highlighting the durable scholarly impact of social media activity.

<https://pubmed.ncbi.nlm.nih.gov/32504611/>





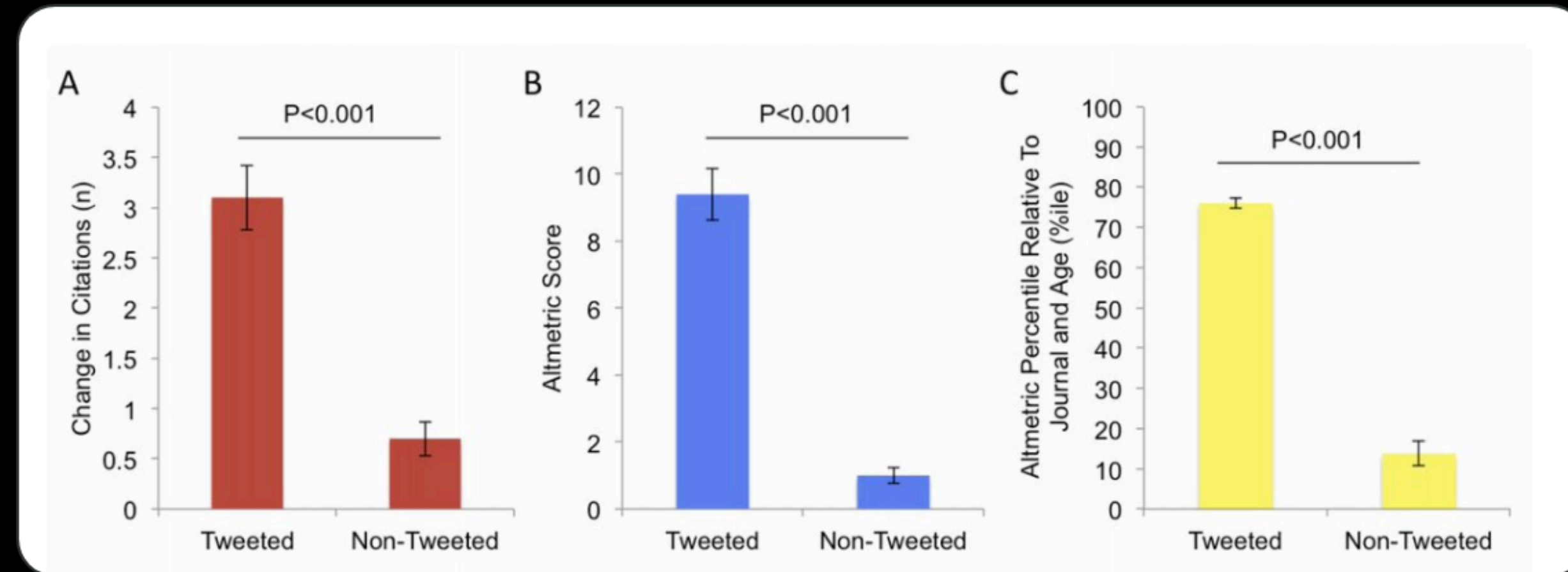
Jason Sheltzer  
@JSheltzer



An amazing \*randomized trial\* on Twitter+academia:

112 papers were randomly chosen to be shared on twitter by a group with ~58k followers or to not be shared. Papers that were tweeted accumulated 4x more citations compared to non-tweeted papers over 1yr.

[pubmed.ncbi.nlm.nih.gov/32504611/](https://pubmed.ncbi.nlm.nih.gov/32504611/)



1:01 PM · Jun 15, 2020 · Twitter Web App

6.5K Retweets 12.2K Likes

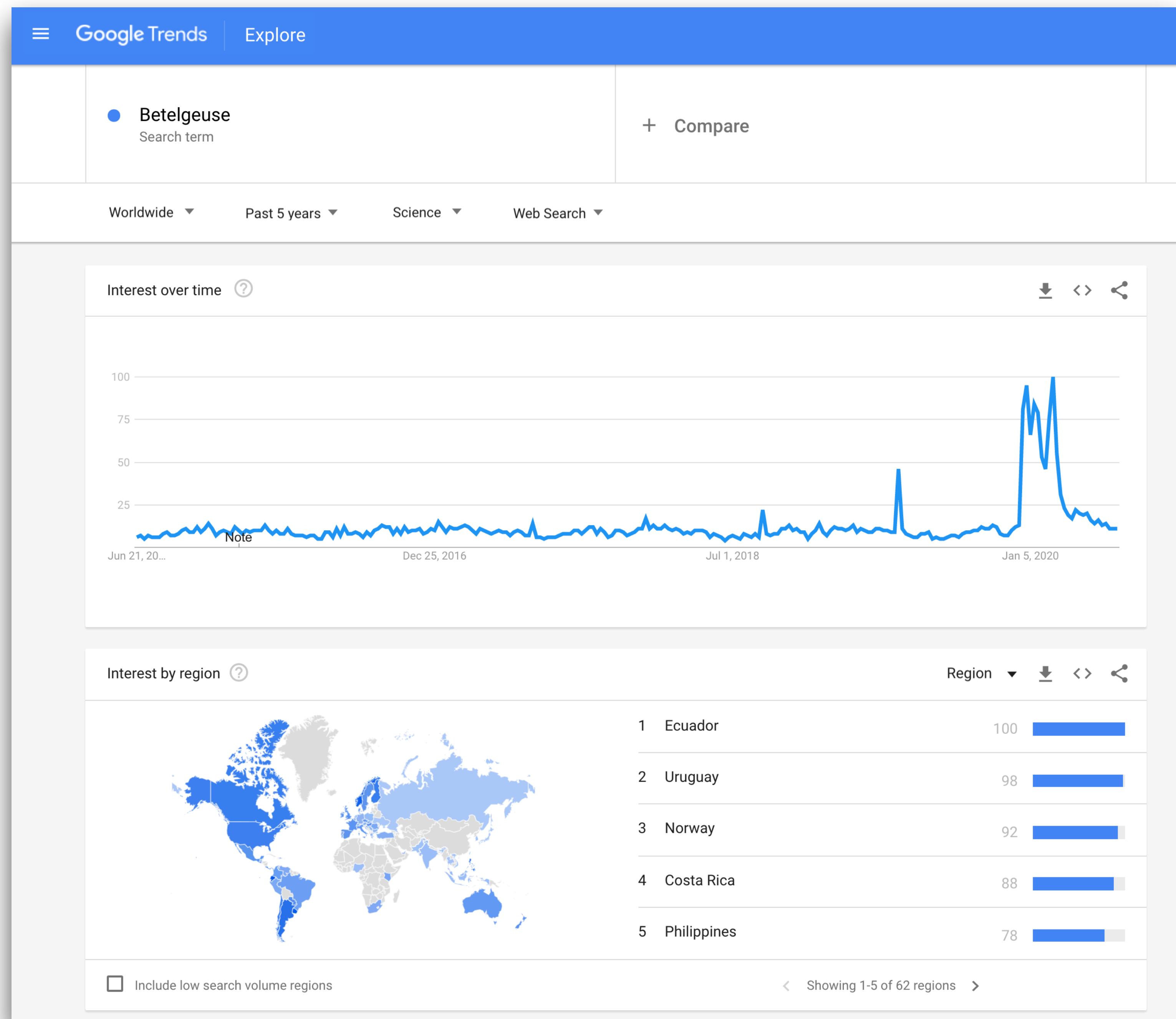
# When Betelgeuse went viral

*The recent dimming event gives us a glimpse into how the word of an imminent supernova will spread.*

Also shows that the public is very interested in such an event.

How word will spread:

1. Our alert
2. Social media
3. News articles





Home

Explore

Notifications

Messages

Bookmarks

Lists

Profile

More

Tweet



#betelgeuse



Top

Latest

People

Photos

Videos

### People

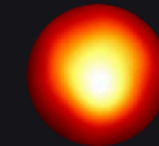


**HasBetelgeuseExploded**

@BetelgeuseCheck

Follow

Your one stop shop to find out if Betelgeuse is still shining bright Made by @centrlPotential

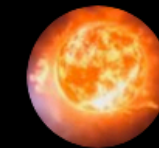


**Betelgeuse**

@IsBetelgeuseOK

Follow

Red supergiant. Orion's best shoulder. Feeling light-headed and, frankly, a bit peckish. They/them. #betelgeuse



**Bételgeuse**

@AG\_betelgeuse

Follow

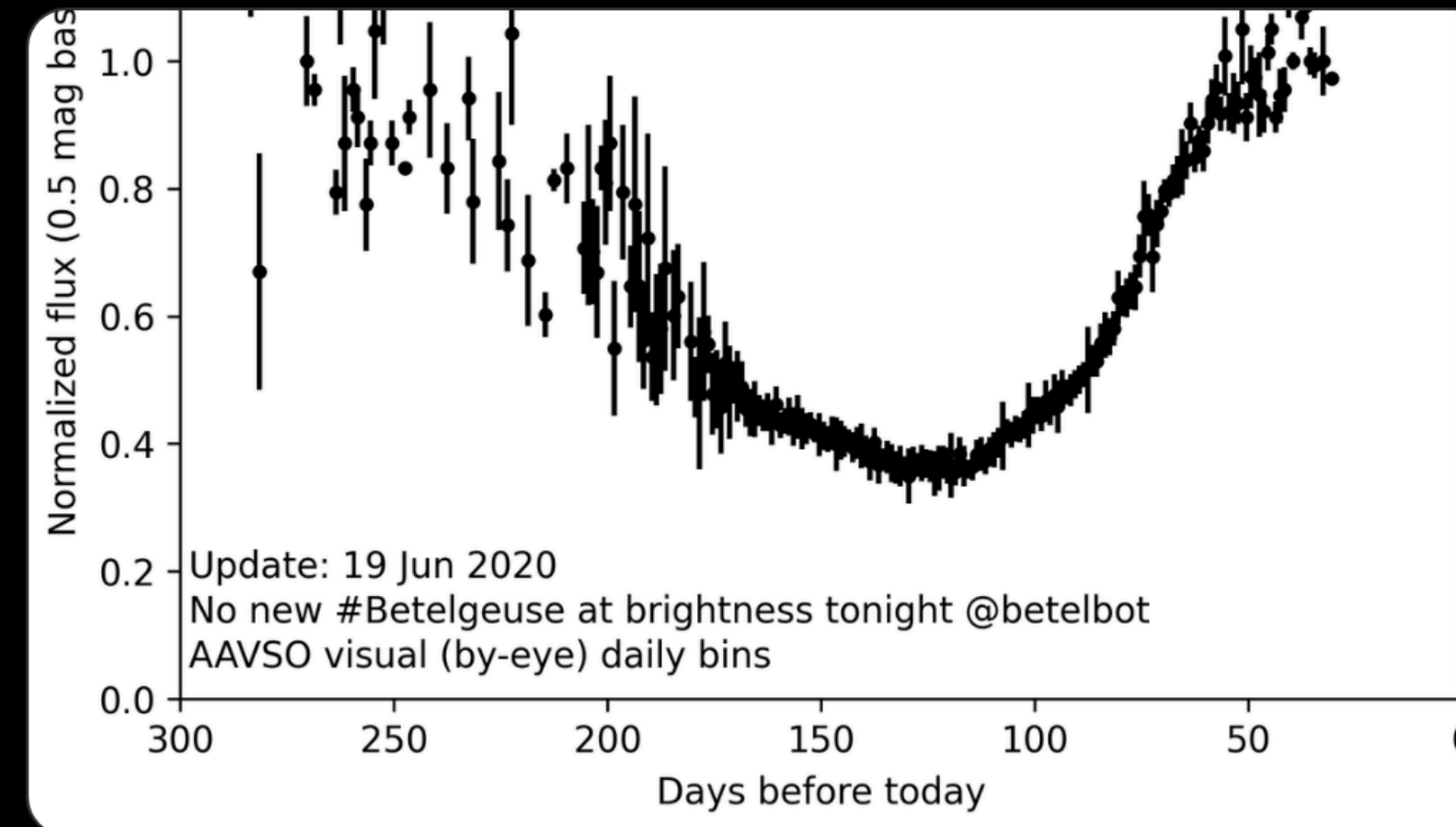
Super-géante rouge. Top 9 des meilleurs étoiles de l'Univers et je vous grille quand je veux. @55\_cancri dans mon noyau pour la vie. #AstronomicGame

View all



**Betelgeuse Status** @betelbot · 16h

No new #Betelgeuse at brightness tonight



11



38







**Phil Plait** ✓  
@BadAstronomer

SCIENCE! I love this stuff. My Bad Astronomy blog: [syfy.com/badastronomy](http://syfy.com/badastronomy)

I use likes for bookmarks; no endorsement implied. He/him.

581 Following **615.4K** Followers

Followed by Neus López March, Oliver J. Hall, and 147 others you follow

Following



**Phil Plait** ✓  
@BadAstronomer

People are asking about this. Basically, Betelgeuse is a variable star, brightening and dimming with time in complicated ways. This group is reporting it's dimmer than usual, by about a factor of 2.



**ATel** @astronomerstel · Dec 7, 2019

ATel 13337: The Fainting of the Nearby Red Supergiant Betelgeuse  
[astronomerstelegram.org/?read=13337](http://astronomerstelegram.org/?read=13337)

5:11 PM · Dec 8, 2019 · Tweetbot for Mac

171 Retweets 577 Likes



**Phil Plait** ✓ @BadAstronomer · Dec 8, 2019

Replying to @BadAstronomer

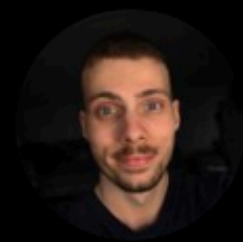
2/ It has several cycles all going on at the same time in its atmosphere, and (I'm guessing) it's possible they just are all kinda hitting their low. I strongly doubt this has anything to do with it getting ready to explode, though.

4

7

111





**Vic** 🇺🇸  
@chmn\_victor

Physics student 🧪  
Astronomy, astrophysics and cosmology 📡  
Future astrophysicist 🚀  
French 🇫🇷🇪🇺 he/him  
#BlackLivesMatter 🍌

225 Following 1,416 Followers

Followed by Anna Hughes, Sarafina Nance, and 3 others you follow

Follow



**Christopher Ingraham** ✓  
@cingraham

Washington Post data reporter. Born-again Minnesotan. Cricket guy. Proud @PostGuild member. Author of If You Lived Here You'd Be Home By Now.

1,317 Following 89.7K Followers

Followed by Scott Whitfield: HRC warned us!, Jess Phoenix 🌋, and 11 others you follow

Follow



**Sarafina Nance** ✓  
@starstrickenSF

I study supernovae & cosmology | Astrophysics PhD student @UCBerkeley | @NSF fellow | BRCA2 previvor making cancer my bitch | IG: @starstrickensf | she/her 🇺🇸

999 Following 101.7K Followers

Followed by Kavya Sharman, Alex Pizzuto, and 95 others you follow

Following



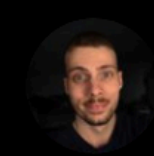
**Jason Major**  
@JPMajor

Sharing space news and beautiful views of the Universe while I #StayAtHome 🏠

4,495 Following 39.5K Followers

Followed by Alex Pizzuto, Beyond NERVA 🌈, and 62 others you follow

Follow



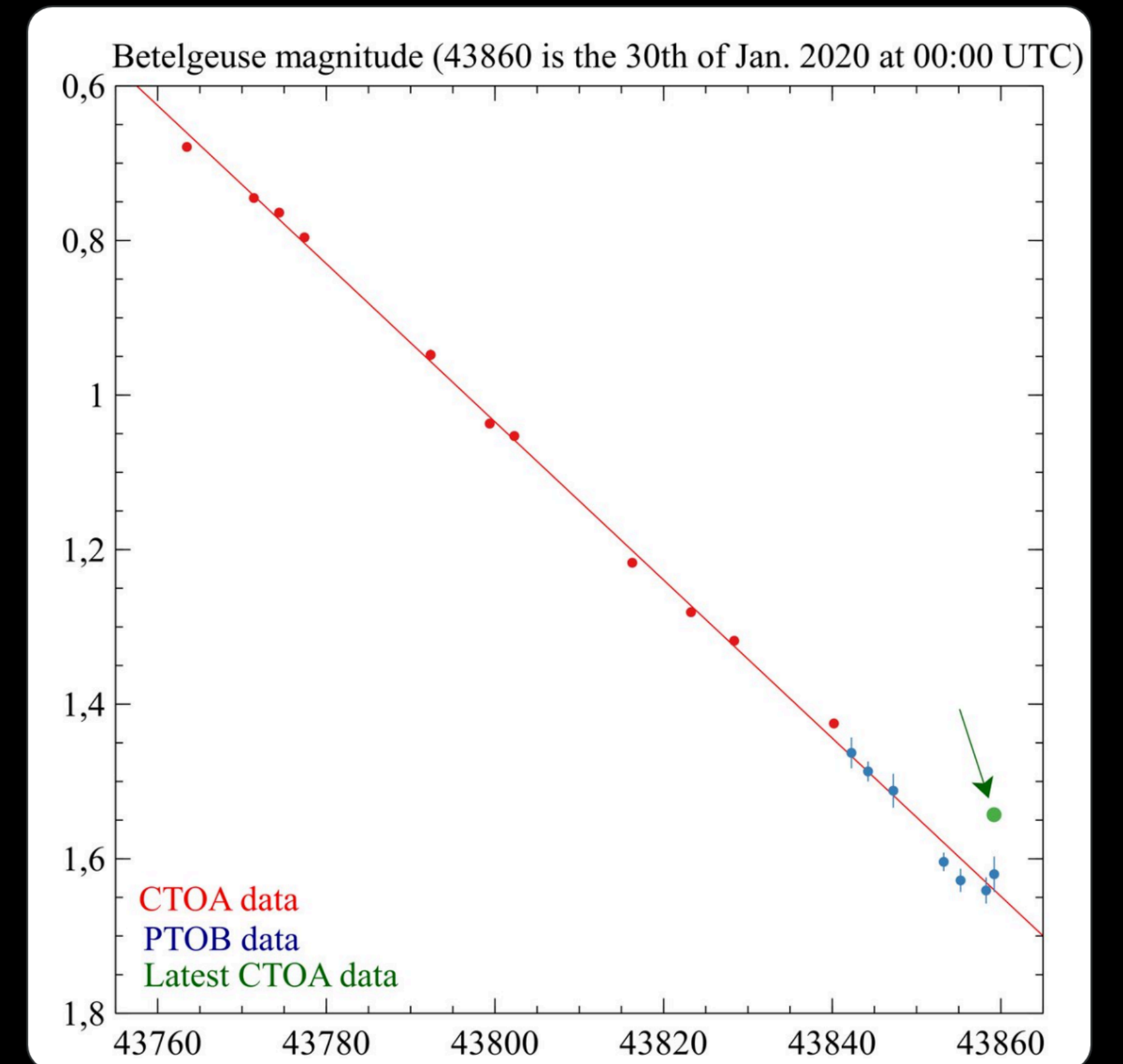
**Vic** 🇺🇸  
@chmn\_victor

**BREAKING NEWS!**

#Betelgeuse seems to have stopped fainting and is brightening pretty fast! It stopped fainting at a minimum magnitude of ~1.64, which is around what I predicted some days ago. Want to know more? Read this little thread!

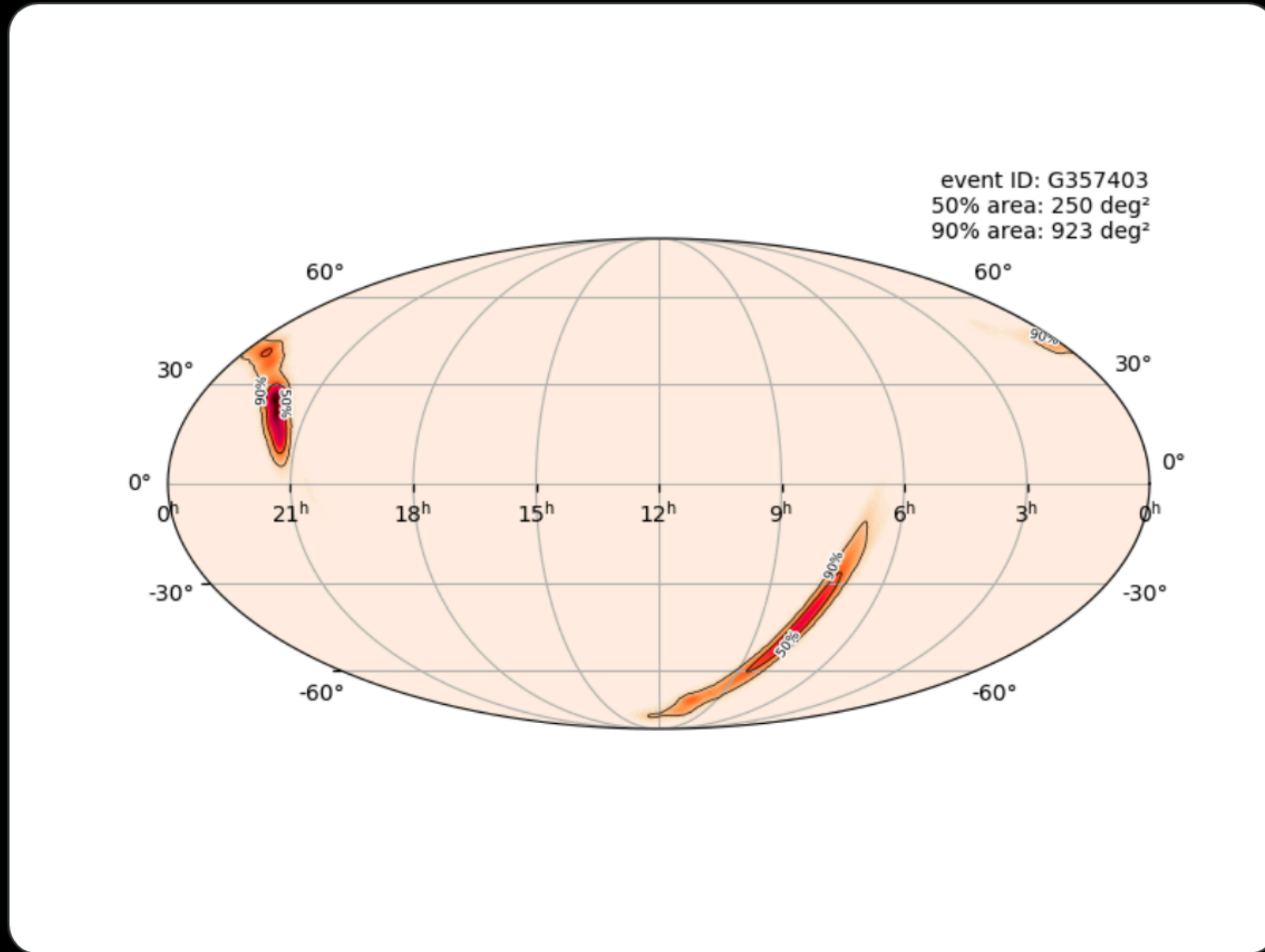
@starstrickenSF @cingraham @JPMajor

1/7





Signal in LIGO/Virgo data. Most likely #gravitationalwaves from a binary black hole source. Observed 19 minutes ago. Find out more at: [gracedb.ligo.org/superevents/S1...](https://gracedb.ligo.org/superevents/S1...)

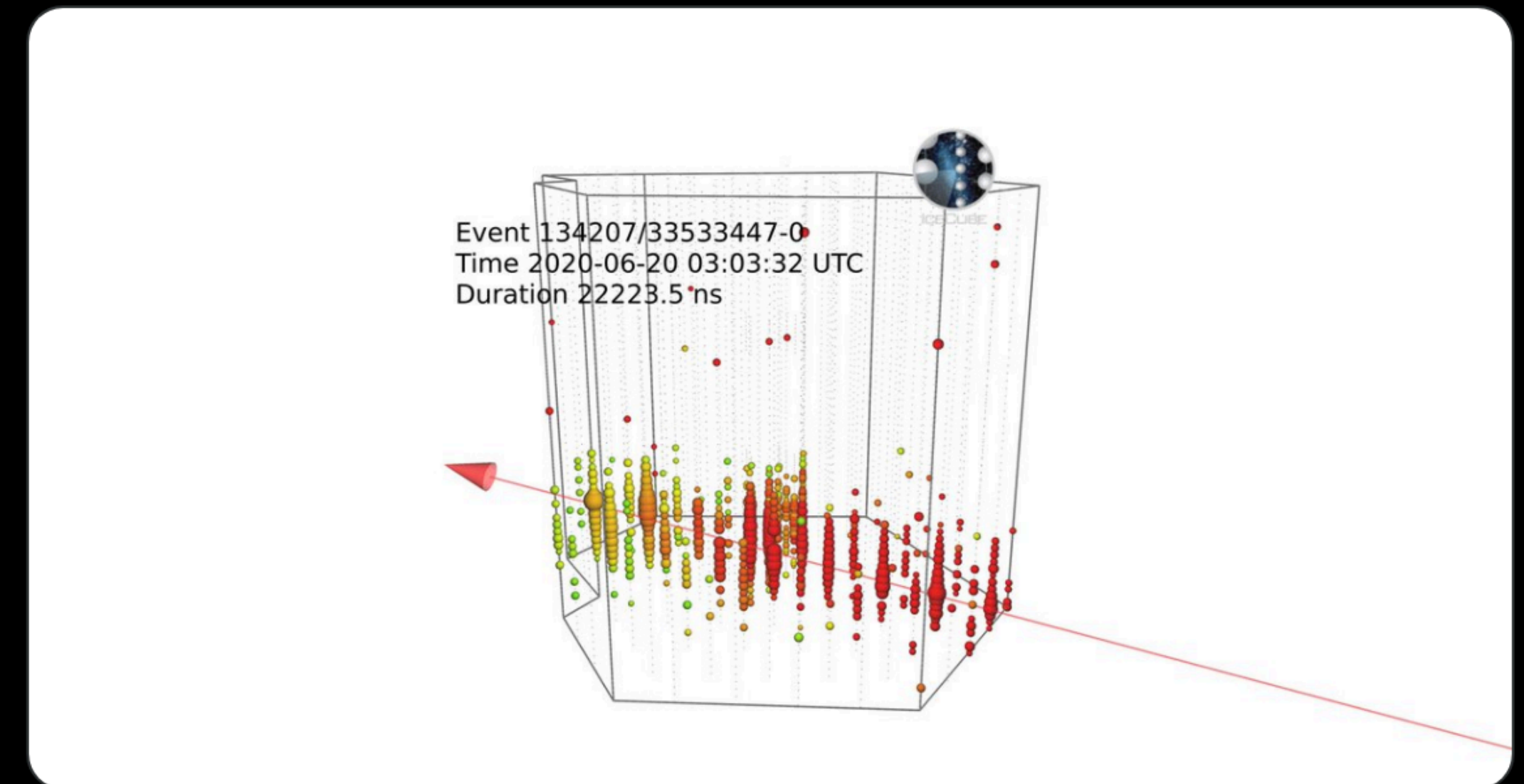


5:50 PM · Dec 15, 2019 · Automated GW Alerts

120 Retweets 315 Likes

LIGO and IceCube have already blazed the trail for us; can follow their examples.

🌟🏅 Bronze alert – IceCube observation of a high-energy neutrino candidate event at 2020/06/20 03:03:32 UTC. Find out more at [gcn.gsfc.nasa.gov/gcn3/27997.gcn3](https://gcn.gsfc.nasa.gov/gcn3/27997.gcn3).



8:24 AM · Jun 20, 2020 · Twitter for iPhone

5 Retweets 33 Likes

# Working with the press

When the alert goes out, word will travel fast.

The press proved to be VERY interested in the prospect of an imminent supernova.

They will reach out for comment during our busiest time, as we wait for visual confirmation.

We should have materials and points of contact ready to go ahead of time.

Showing 75 results for:

## betelgeuse

Search icon Sort by Relevance ▾

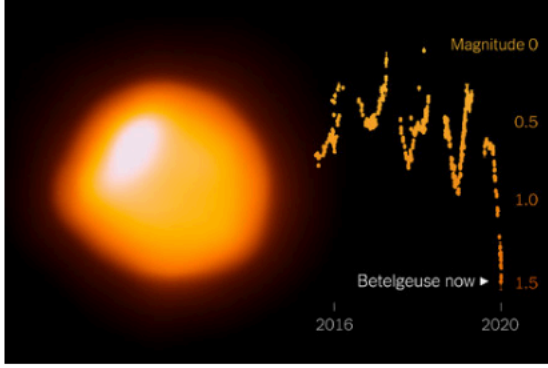
Date Range ▾ Section ▾ Type ▾

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Jan. 9 SCIENCE

### Waiting for Betelgeuse to Explode

It could be a long wait.  
By Jonathan Corum





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Jan. 9 SCIENCE

### Just a Fainting Spell? Or Is Betelgeuse About to Blow?

A familiar star in the constellation Orion has dimmed noticeably since October. Astronomers wonder if its explosive finale is imminent.  
By Dennis Overbye

PRINT EDITION Betelgeuse: Cranky or Near Death? | January 14, 2020, Page D3





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Feb. 14 SCIENCE

### New Images of a Fading Betelgeuse

Glimpsing the surface of a shape-shifting star.  
By Jonathan Corum

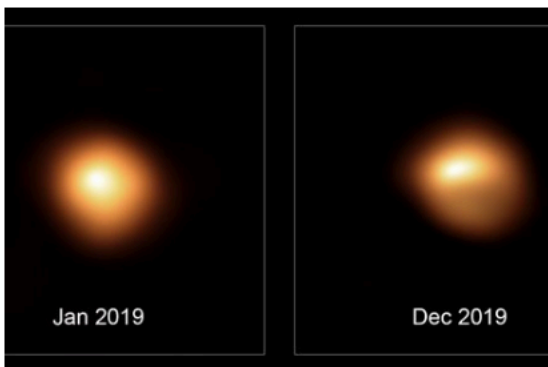



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Feb. 14 SCIENCE

### The Further Adventures of Betelgeuse, the Fainting Star

The red supergiant is no closer to exploding, it seems. It also no longer appears round.  
By Dennis Overbye





# Current Picture of Outreach Group

- Primary focus will be on amateur astronomers and the general public.
- Website remodel, translation, etc. (*Justin, Dan's students for UI/UX*)
- SNEWS App: Funding available for development (*Dan*). Collaboration possible with course at Duke where students build apps (*Kate*). One example is "Neutrinoscope" which has an AR component (*Jost*)
- Add SN component to IceCube masterclass for HS students (*Segev*)
- Planetarium shows (*Rafael*)
- New logo? Swag like stickers, buttons, etc (your name here)
- Materials for talks at conferences, clubs (your name here)
- Training materials for AAs and links to resources (your name here)
- ***Have an idea or want to contribute? Join us!***  
***#tg8\_outreach*** on Slack

