

Mapping Weather and Climate via Social Media

9th Annual CoRP Symposium
CIMSS/SSEC Madison, WI

Kyle Nelson

facebook

December 2010

Agenda

- 🌐 Introduction
- 🌐 What is Social Media?
- 🌐 Context and Trends
- 🌐 Tools You can use!



About me...

- 🌐 **Kyle Nelson, BS Meteorology, Central Michigan University**
- 🌐 **2nd-year Master's student at UW-Madison**
- 🌐 **Research: MODIS - Liquid Clouds and Ice Melt on Greenland Ice Sheet**
- 🌐 **Instructor for the National Disaster Preparedness Training Center at the University of Hawaii**
 - 🌐 **Social Media for Natural Disaster Response and Recovery**



who is Kyle Nelson?



Kyle Nelson

@WxKyleNelson

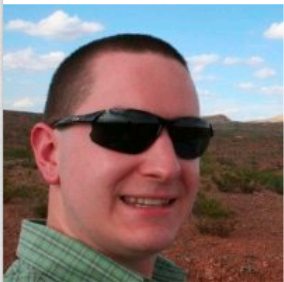
Grad Student pursuing my MS in Atmospheric Science at UW-Madison. Ski Patroller. RADEF/HAZMAT Technician. Aspiring Avalanche Forecaster and NDPTC Instructor.
Madison, WI · [linkedin.com/in/wxkylenelson](https://www.linkedin.com/in/wxkylenelson)



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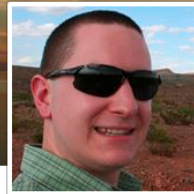
Kyle Nelson

Graduate Research Assistant at University of Wisconsin-Madison

Madison, Wisconsin | Research

Current	University of Wisconsin-Madison, Bittersweet Ski Resort Ski Patrol, Quality Process Control Systems, LLC
Previous	Boulder National Weather Service Forecast Office, Colorado Avalanche Information Center, Arapahoe Basin Ski Area Ski Patrol
Education	University of Wisconsin-Madison

Kyle Nelson



Kyle Nelson

Update Info

Activity Log

Timeline

About

Photos 105

Friends 280

More

About

Work and Education

Edit



UW-Madison Department of Atmospheric and Oceanic Sciences (UW-AOS)
Research Assistant · Madison, Wisconsin · Aug 15, 2012 to present



Allegan County Emergency Management
Radiological Defense Officer · Allegan, Michigan · Aug 1, 2012 to present
[See All Employers](#)



University of Wisconsin-Madison
Sep 2012 to May 2014 · Atmospheric and Oceanic Sciences · Atmospheric Sciences · Madison, Wisconsin



Central Michigan University
Class of 2012 · Meteorology · Mount Pleasant, Michigan

Living

Edit



Madison, Wisconsin
Current City



Holland, Michigan
Hometown

Basic Information

Edit

Birthday December 15
Gender Male

Poll: Social Media and You



Goals

- 🌐 Provide you with or enhance your understanding of
 - 🌐 The power of social media
 - 🌐 Tools and methods for using social media to monitor weather, climate and current events

Why Social Media?

NOW
MYSTERIOUS
FRUSTRATING
OLD
YOUNG
BREATHING

SOCIAL MEDIA IS LIVING





@equalman 

5 C's of Social Media

- 🌐 Content
 - 🌐 Conversation
 - 🌐 Connection
 - 🌐 Collaboration
 - 🌐 Community
- 🌐 Big lens on human behavior
 - 🌐 We can extract useful information from “Big Data”
 - 🌐 But how?

Terminology

Hashtag

-  Uses the # symbol at the start of the word or phrase
 -  #swiwx #gobadgers #BlackForestFire
-  Identifies Twitter tweets and Facebook posts with specific topics
-  Help organize and spread information on Twitter and Facebook

Social Media Tools

Find, search, refine

Twitter Trends (top 10)

 twitter.com

Trendsmap

 trendsmap.com

Google Trends

 google.com/trends

Ice Rocket

 icerocket.com

Advanced Products

Geotagged Tweet search

 [www.i-resilience.fr/
app/easygeotweets/](http://www.i-resilience.fr/app/easygeotweets/)

Bing Twitter Search

 bing.com/twitter/maps

Social Mention

 [Socialmention.com](https://socialmention.com)

Ushahidi

 ushahidi.com

Examples:

**Mapping Weather
via Social Media**

Twitter Trends

Twitter trend list for today/last night

 #alwx (Alabama Weather)

Trends · Change

#alwx

 #Dorian (?)

 Atlantic

Trends · Change

#Dorian

Chromecast

Atlantic

#Nexus7

Android 4.3

#5HDinahSeventeen

#WhatPeopleDontRealize

#ReplaceaWordinaQuotewithWeiner

Brady Hoke

Sounds

Trendsmap



Twitter Keywords

- 🌐 Winter - roads, sleet, lake-effect, lake effect, snow, slippery, feet, inches, roads, ice, temperature, subzero, freezing, frozen, icestorm, ice storm, sliding, slid, bridge, overpass, whiteout, visibility, blizzard, frost, shovel, degrees
- 🌐 Travel - traffic, roads, closure, closed, car, highway, turnpike, flight, tarmac, turbulence, icing, delays, airport, cancelled, canceled, plane, train
- 🌐 Visibility - smoke, fog
- 🌐 Severe - storm, damage, thunderstorm, destruction, devastation, tstorm, t-storm, twister, lightning, debris, tree, hook, window, radar, car, tree limb, hail, transformer, wires, flattened, cornfield, power lines, power out, electricity, derecho, destroy, roof
- 🌐 Wind - windy, winds, windstorm, semi (truck), tractor trailer, gale
- 🌐 Flood - flooding, downpour, water, rainstorm, river, wet, soaked, flash
- 🌐 Lake - waves, sea, gale, lake, boat, ship, erosion, rip current, riptide, rescues
- 🌐 Sky - sunrise, sunset, clouds, sky, moon, sun, eclipse, lunar, solar, aurora, borealis, northern lights, rainbow
- 🌐 Summer - (car) dashboard, thermometer, temperature, heat wave, heatwave, beach, blazing, buckled (roads), desert, drought, excessive, degrees

Twitter Search

- 🌐 Search and refine hashtag results for events
 - 🌐 Damage from storms yesterday/last night
 - 🌐 Great Plains last night
 - 🌐 “storm” AND “damage” near: “Tulsa, OK”
 - 🌐 Flooding from storms in Alabama
 - 🌐 “flood” near: “Alabama”

Results for "storm" AND "damage" near:"Tulsa, OK"



Tweets [Top](#) / [All](#) / [People you follow](#)



Rian Montgomery @rianmontgomery

26m

Crazy storms around here last night... I saw transformers going up & my bldg was rocking in the 70+mph winds. Lots of **damage!** #Tulsa #storm

[Expand](#)



Jennifer Loren @newsjen

27m

Send us your **storm damage** pics! pics@newson6.net

[Expand](#)



jason shackelford @TheListShack

52m

Wow! What a **storm!** What does **damage** look like in your area? #okwx #thelist pic.twitter.com/akUkxZXZLB

[View photo](#)



N2Owasso @n2owasso

52m

Post your **storm damage** photos! Did you get a lot of **damage?**

[Expand](#)



FOX23 @FOX23

52m

Mayor, city officials update on **storm** situation:

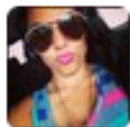
City of Tulsa held a news conference on **storm damage** ... bit.ly/1bhoU6u #FOX23

[Expand](#)

Results for "flood" near:"Alabama"



Tweets [Top](#) / [All](#) / [People you follow](#)



Amber Dominique @b00bi321

48m

@crazylegs81 there was a **flood** in my house and I'm over dealing w the insurance company.

[View conversation](#)



Micheal Thompson @Micheal_Thompso

1h

NWS has issued a Areal **Flood** Advisory for Blount County until 11:30 AM

[Expand](#)



Alabama Weather Team @AlabamaWxTeam

1h

NWS has issued a Areal **Flood** Advisory for Blount County in AL until 11:30 AM

[Expand](#)



Bobby Deskins @BobbyDWeather

3h

Event extended (time). **Flood** Warning from 7/24/2013 10:25 AM to 7/27/2013 8:00 PM EDT for TBW.... Read more at bit.ly/15fHgyH

[Expand](#)



Leigh Spann @WFLALeigh

4h

FLOOD ADVISORY for Citrus Co. near Crystal River & Beverly Hills. Heavy rain is falling. Frequent lightning too. wfla.com/category/25210

...

[Expand](#)

Icerocket



BLOGS

TWITTER

FACEBOOK

SEARCH ALL

#dorian



Twitter · All | Links | Text | Hashtags · 5.1 posts/minute

1 - 15 results for #dorian

Twitter Search Results for #dorian



Ohlone Tactical @OhloneTactical

← ↻ ★ 17 s

RT @28storms: LONG Range GFS indicates U.S. interests should monitor the progress of #Dorian over the next week <http://t.co/nidxpvQF3R>



DTVaWeatherman @DTVaWeatherman

← ↻ ★ 41 s

RT @TropicalTidbits: 12z GFS going nuts with #Dorian. Hurricane NE of Puerto Rico in 7 days on full-resolution forecast grid: <http://t.co/X...>



HurricaneTracker App @hurrtackerapp

← ↻ ★ 1 m

Long Range GFS indicates U.S. interests should monitor the progress of #Dorian over the next week <http://t.co/MJLCd52oHI>

Geotagged Tweet Search

- 🌐 “Click, type, click”
- 🌐 Pick a point, choose keywords or hashtags, choose your search
- 🌐 Automatically generates and displays results from Twitter using parameters you define

Tulsa, OK

East 3rd Street

P

Kennedy Building

LatLng(36.15244, -95.99054)

Keyword/hashtag (opt.):

GeoTweets (radius):

[100m](#) - [500m](#) - [1km](#) - [5km](#) - [10km](#) - [50km](#) - [100km](#)

East 4th Street

Mid-

Main Street

Courtyard

427

Results for **flood geocode:36.152442908080474,-95...**



Tweets [Top](#) / [All](#)



Sasha Martin @GlobalTable

3h

"Don't sleep in a place so low that a **flood** can carry you away.
Don't sleep in a place so high that wind can blow you away"

[#Turkmenistan](#)

[Expand](#)



2NEWS Works for You @KJRH2HD

6h

Areal **Flood** Warning for Le Flore, Mayes, and Sequoyah County in OK until 1:00pm Wednesday. bit.ly/AlertsRIGHTNOW

[Expand](#)



2NEWS Works for You @KJRH2HD

6h

Areal **Flood** Warning for Adair, Cherokee, Delaware, Haskell and Latimer County in OK until 1:00pm Wednesday.

bit.ly/AlertsRIGHTNOW

[Expand](#)



Jeremy Stutzman @Jeremy_Stutzman

6h

Hmmm I wake up and apparently we had flash **flood** warnings and the 8th grade center caught on fire. What else did I miss?!

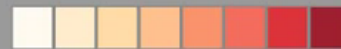
[Expand](#)

Mapping Climate and Current Events via Social Media

Other Topics: Earthquakes

TweetQuake

Mentions of “earthquake” on Twitter in the 5 minutes following the August 23, 2011 Virginia earthquake



More tweets →

Alan Mislove¹, Sune Lehmann², Yong-Yeol Ahn³, Chloe Kliman-Silver⁴

¹*Northeastern University*

²*Technical University of Denmark*

³*Indiana University*

⁴*The Winsor School*

Video by Prof. Alan Mislove et al.; http://youtu.be/XJ1EQbmJ_LQ

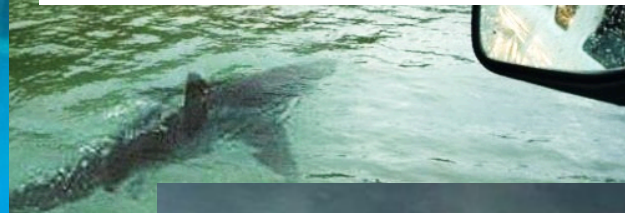
Limitations!

- 🌐 Keep in mind that during events, some people post inaccurate information and fake images



ComfortablySmug
@ComfortablySmug

BREAKING: Confirmed flooding on NYSE. The trading floor is flooded under more than 3 feet of water.



Solutions?

- 🌐 Reverse image search: www.tineye.com
- 🌐 Be proactive in rumor management and don't "fuel the fire" or post/share everything



scott reuter @sct_r

6h

MT @commutiny: Bots, rumormongers & spoof accounts are normal part of Twittersphere -not anomalies -so don't disregard them
#SRAconf #SMEM

💬 View conversation



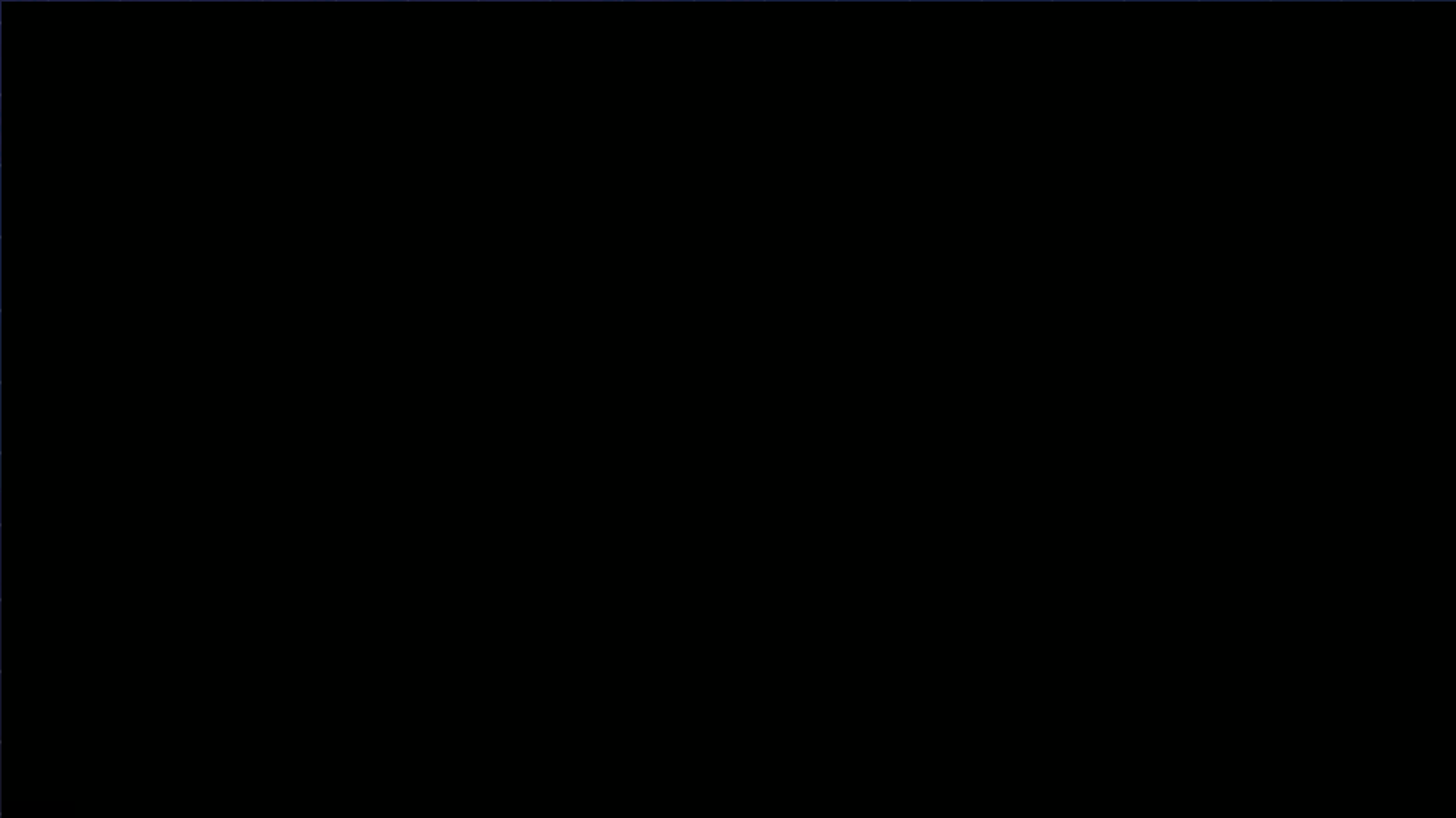
Kyle Nelson @WxKyleNelson

"Research twice, Tweet once" @Tarantino4me #NDPTC

Expand

Seek and Be Official Sources

- 🌐 Look for information from official accounts such as
 - 🌐 City/State/Federal Government
 - 🌐 National Weather Service – (?)
 - 🌐 Local Emergency Management
 - 🌐 Other Government Agencies
 - 🌐 Skywarn/Spotter Groups
- 🌐 Be a source of information and promote your product!
 - 🌐 National Weather Service
 - 🌐 Research Agencies
 - 🌐 Students



Video produced by Twitter; <http://youtu.be/oUFsJhYBxzY>

Takeaways

- 🌐 **Greater understanding and appreciation of the power of social media**
- 🌐 **Current tools and methods to use of social media for monitoring weather, climate and current events**

Acknowledgements

- 🌐 **Scott Reuter, Instructor, National Disaster Preparedness Training Center; @sct_r**
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- 🌐 **T.J. Turnage, Science and Operations Officer, National Weather Service, Grand Rapids, MI**
- 🌐 **Margaret Mooney, Director of CIMSS Outreach and Education, University of Wisconsin – Madison**
- 🌐 **Patrick Rowley, Education and Outreach Specialist, University of Wisconsin – Madison**
- 🌐 **Erik Qualman, Prof. Mislove, Twitter**

#thanks

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 .com/in/wxkylenelson