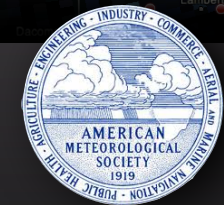
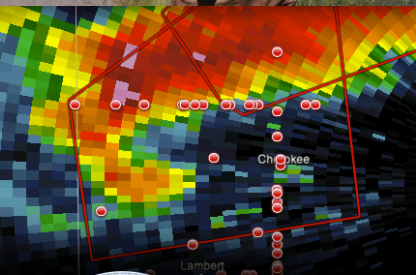
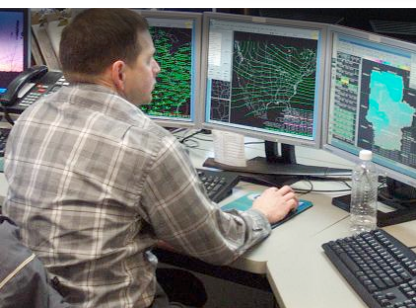


UTILIZING THE NEW SPOTTER TECHNOLOGY in Weather-Ready Management

By Joshua J. Jans and Albert E. Pietrycha



93rd American Meteorological Society Annual Meeting

First Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events



AN INTRODUCTION

The collection of real-time data relating to severe weather is critical in disaster planning, response, and recovery.

April 3, 2012 Dallas Tornadoes



April 28, 2012 St. Louis Hailstorm



June 26, 2012 Colorado Springs Wildfire



June 29, 2012 Ohio Valley Derecho



October 29, 2012 Post Tropical Sandy



December 19–20, 2012 Iowa/Wisconsin Blizzard

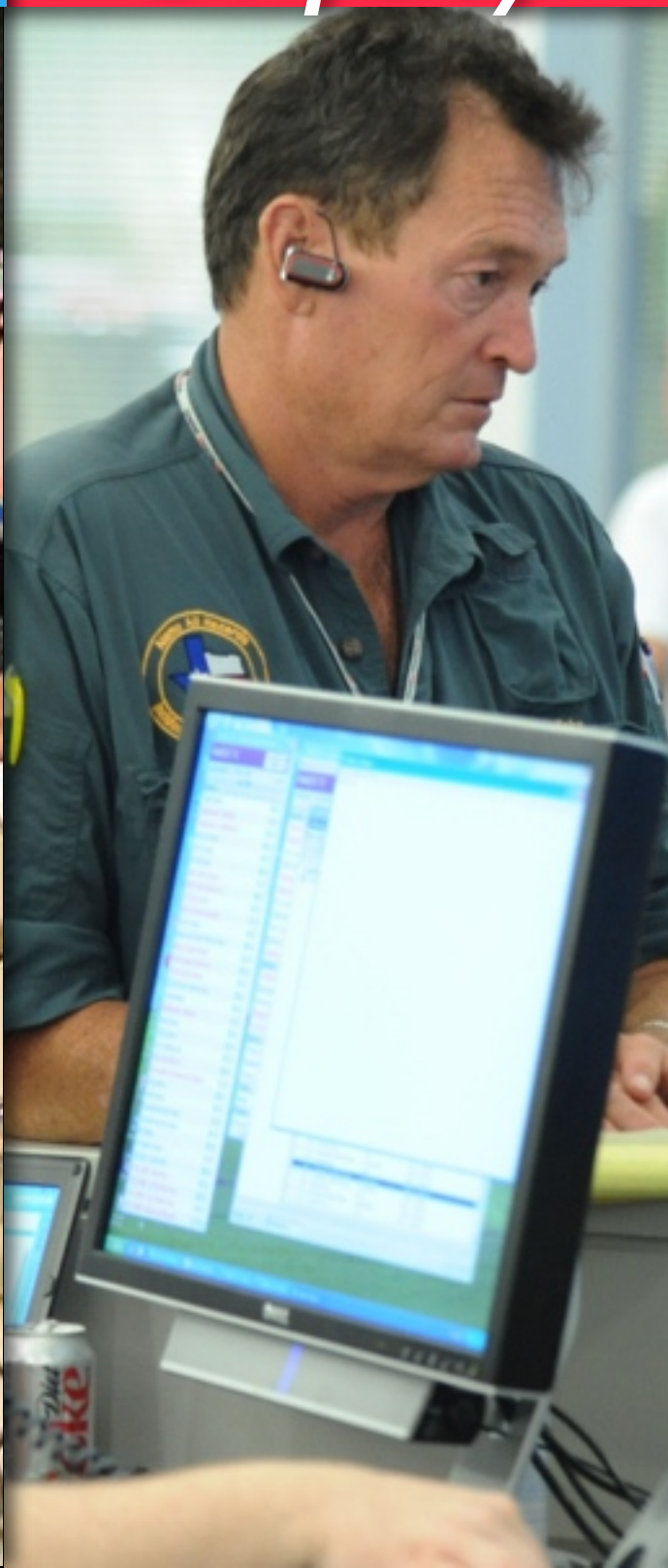


INTEGRATED WARNING TEAM

NWS



Safety



Media



Spotters



INTEGRATED WARNING TEAM

NWS

Safety

Media

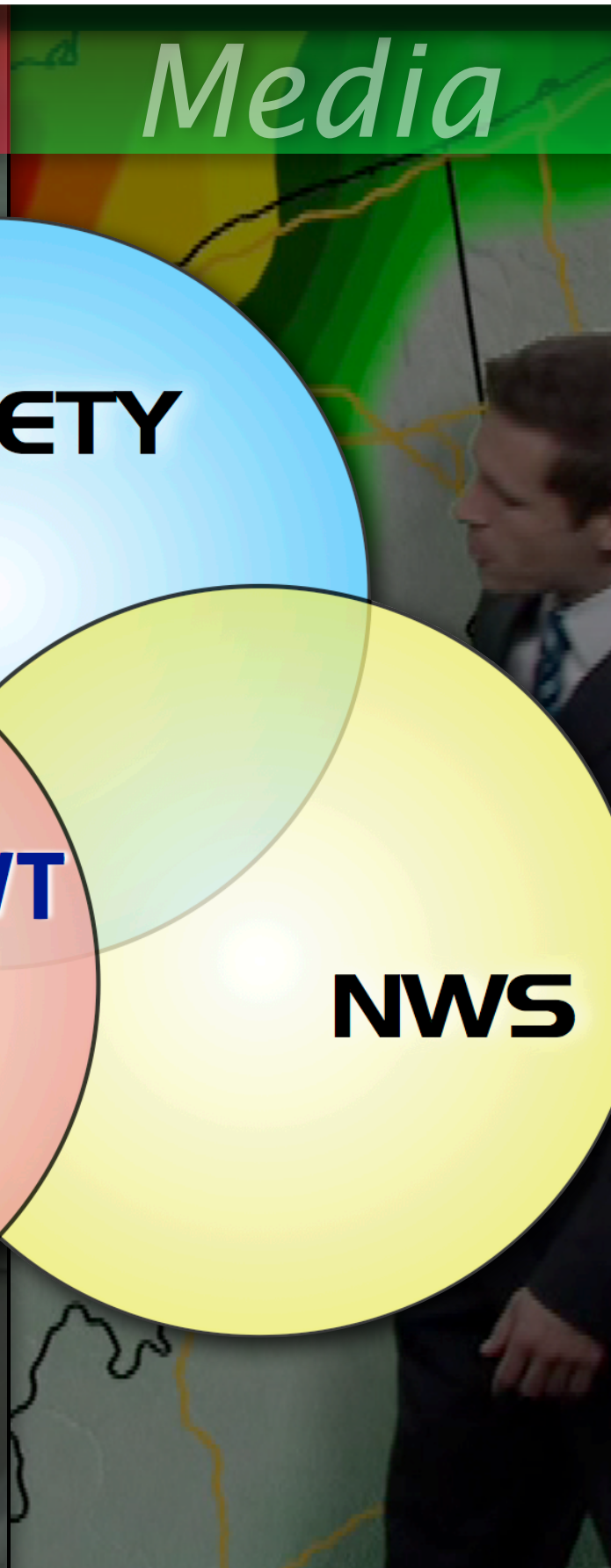
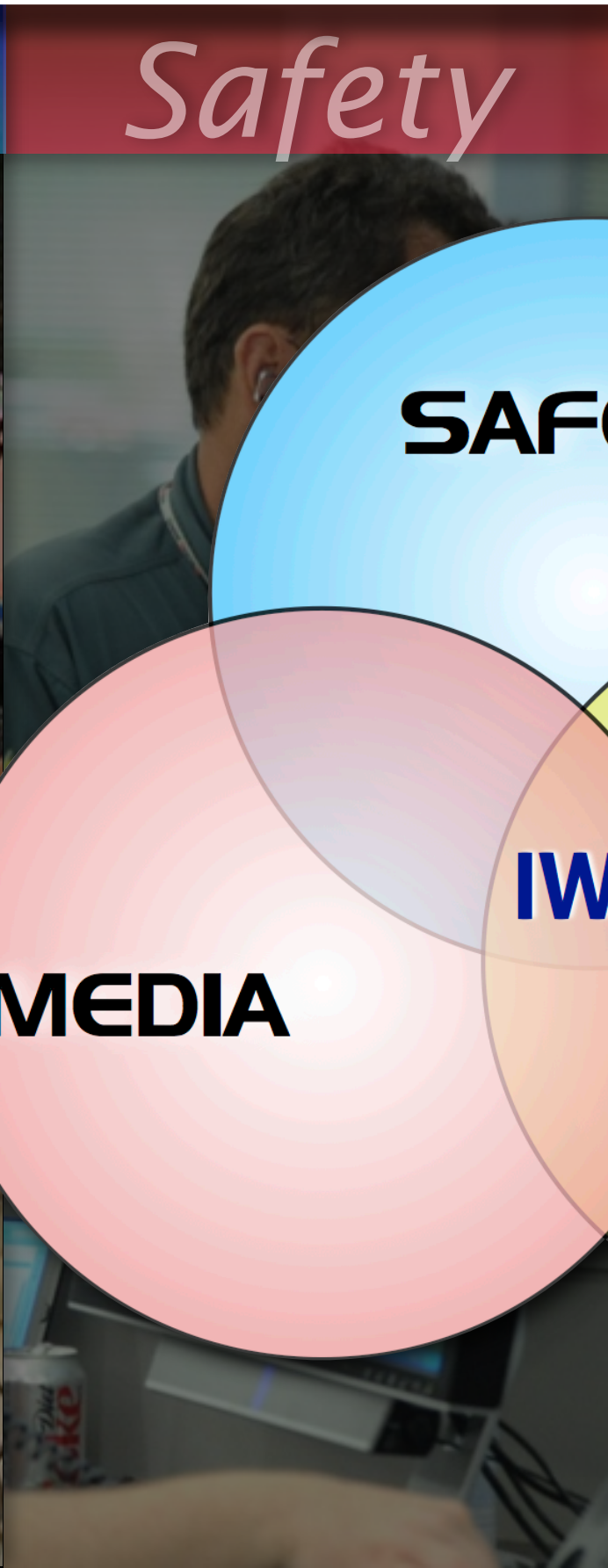
Spotters

SAFETY

IWT

MEDIA

NWS





350,000

NWS SKYWARN WEATHER SPOTTERS



Storm Reports

- ✓ Give confidence to NWS forecasters in issuing or not issuing warnings.
- ✓ Enhance creditability to call-to-action statements within the warnings
- ✓ Serve as a verification of storm-based warnings
- ✓ Provide a starting point for storm damage survey operations when needed

Emergency
Management



Law
Enforcement



Firefighters &
Rescuers



Weather Spotter Community

Storm Chasers



Amateur Radio

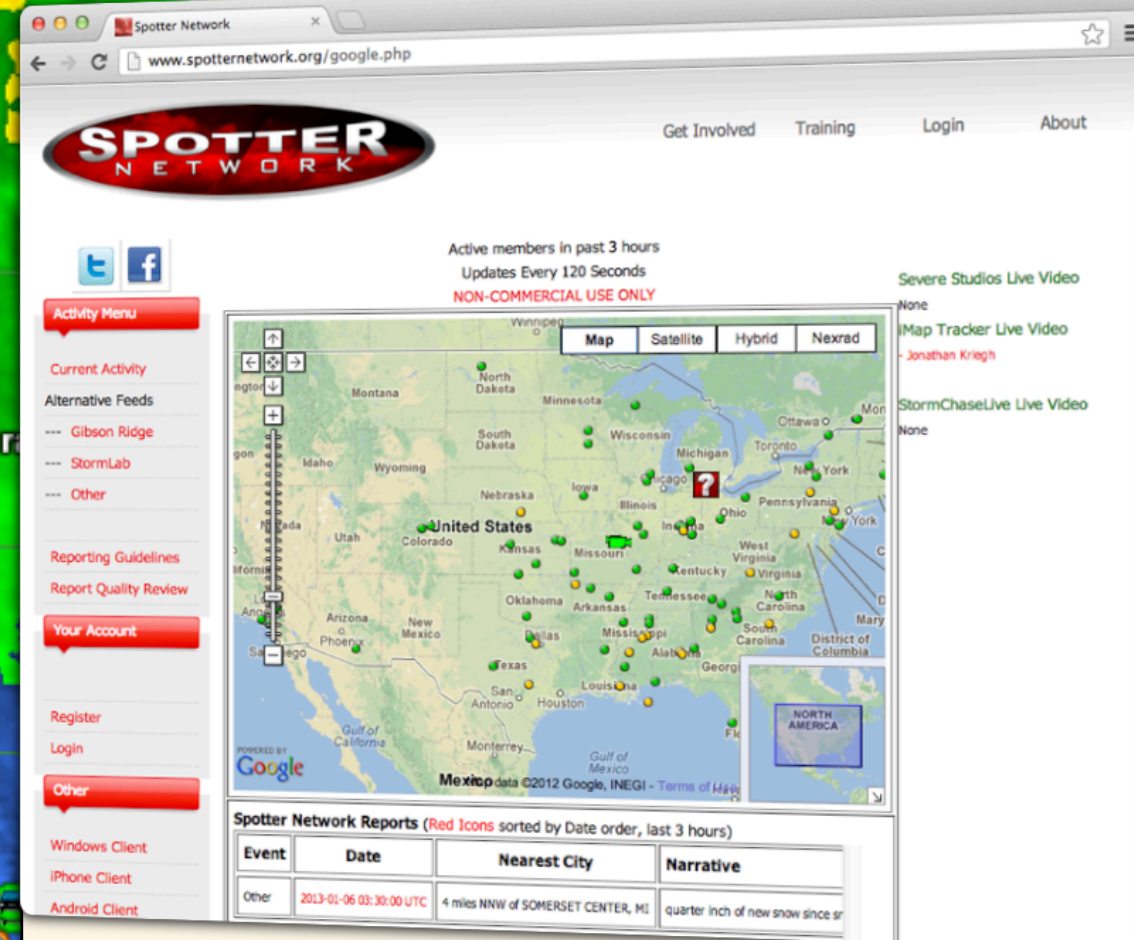


Volunteer
Citizens



SPOTTER NETWORK

SN
EST 2006



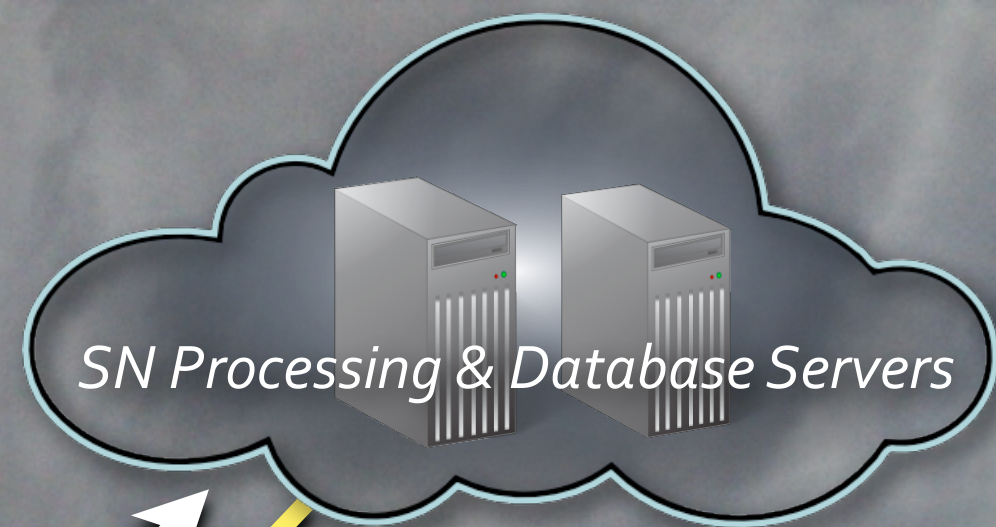
30,130 Registered Accounts
8,458 Trained

**Providing Real-Time Mapping of Spotters
and their Storm Reports Nationwide**





Cloud
Solution



Smart
Phones

Tablets

APRS
Ham Radios

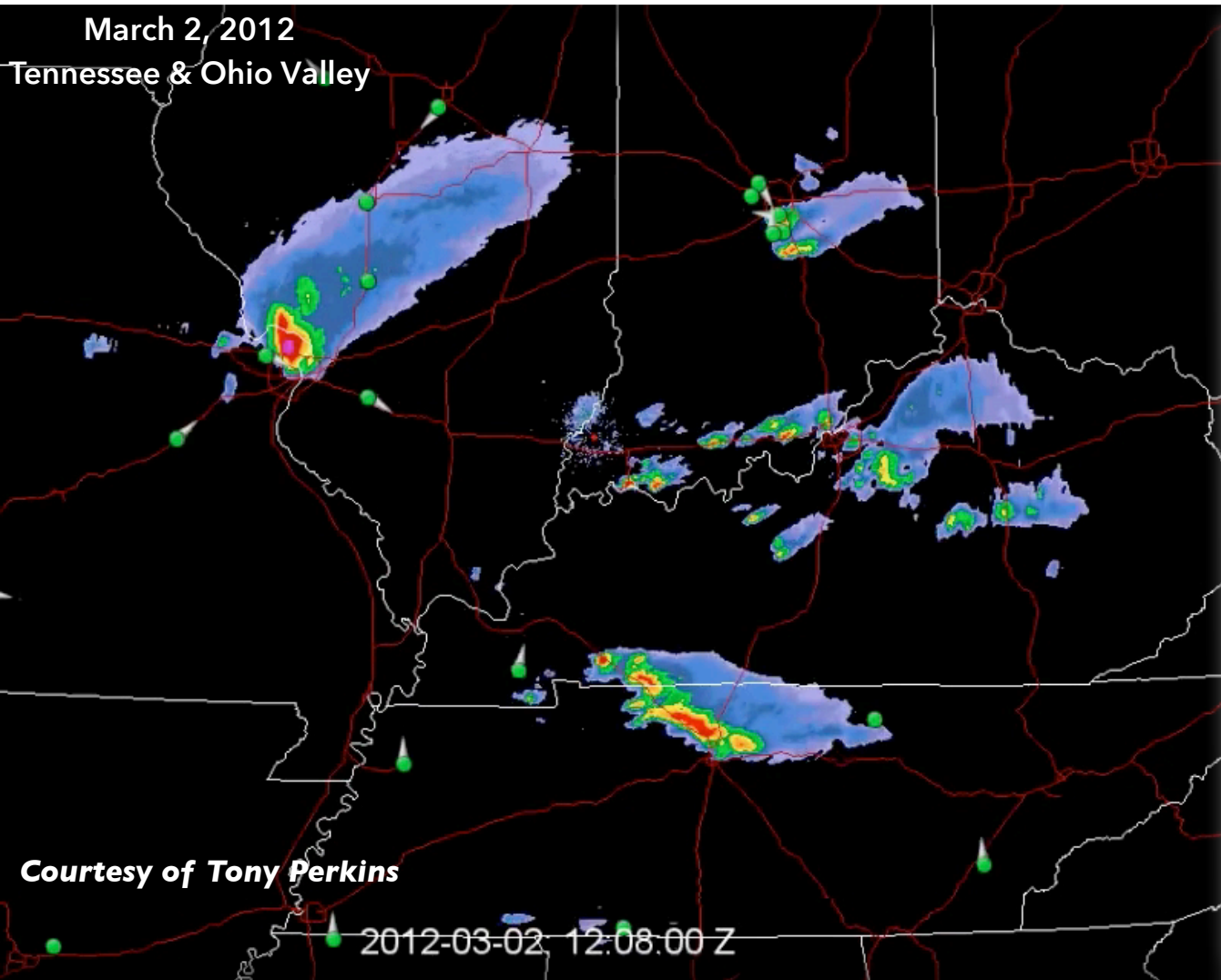
Laptops - Desktops



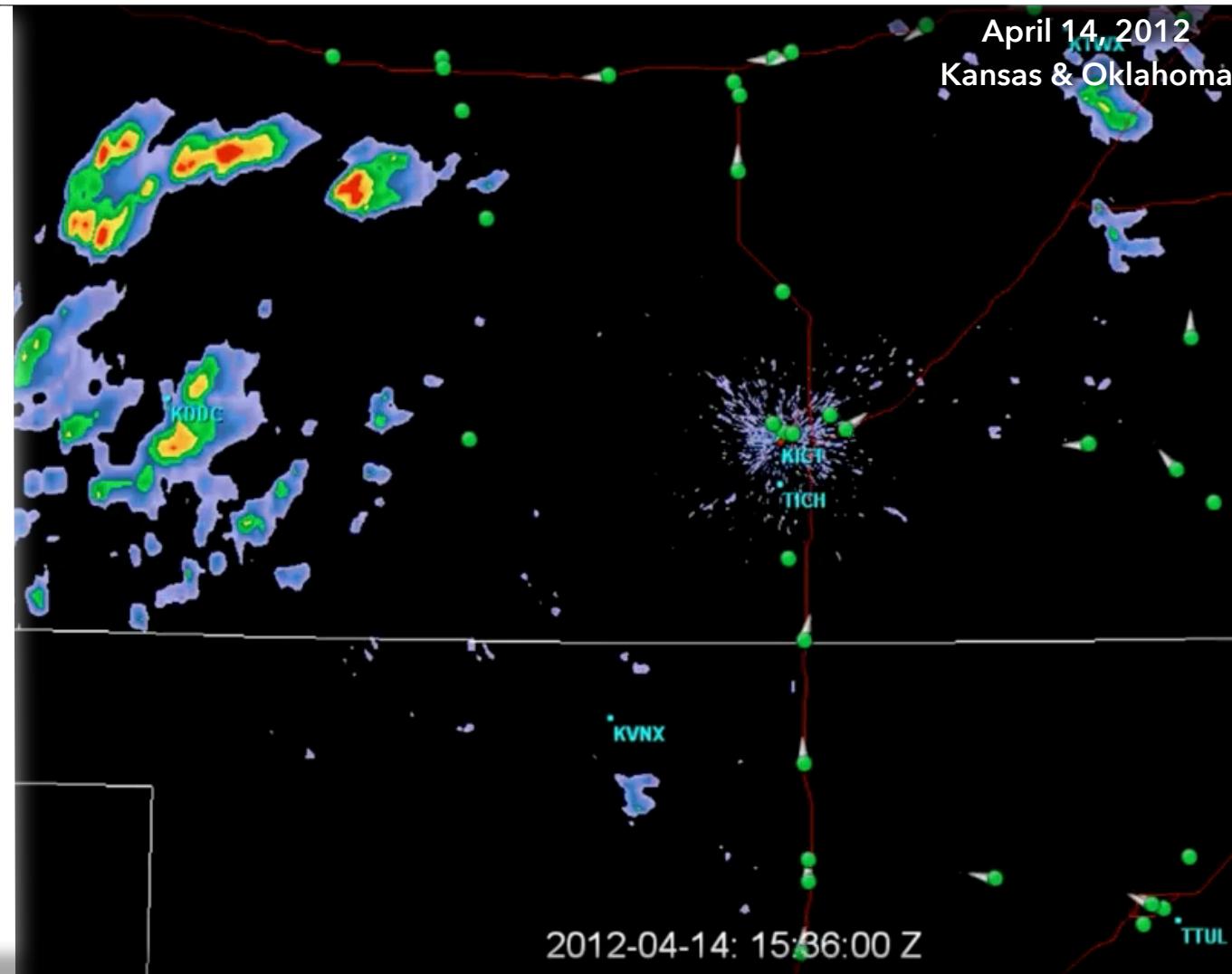
SPOTTER NETWORK

SN

March 2, 2012
Tennessee & Ohio Valley



April 14, 2012
Kansas & Oklahoma



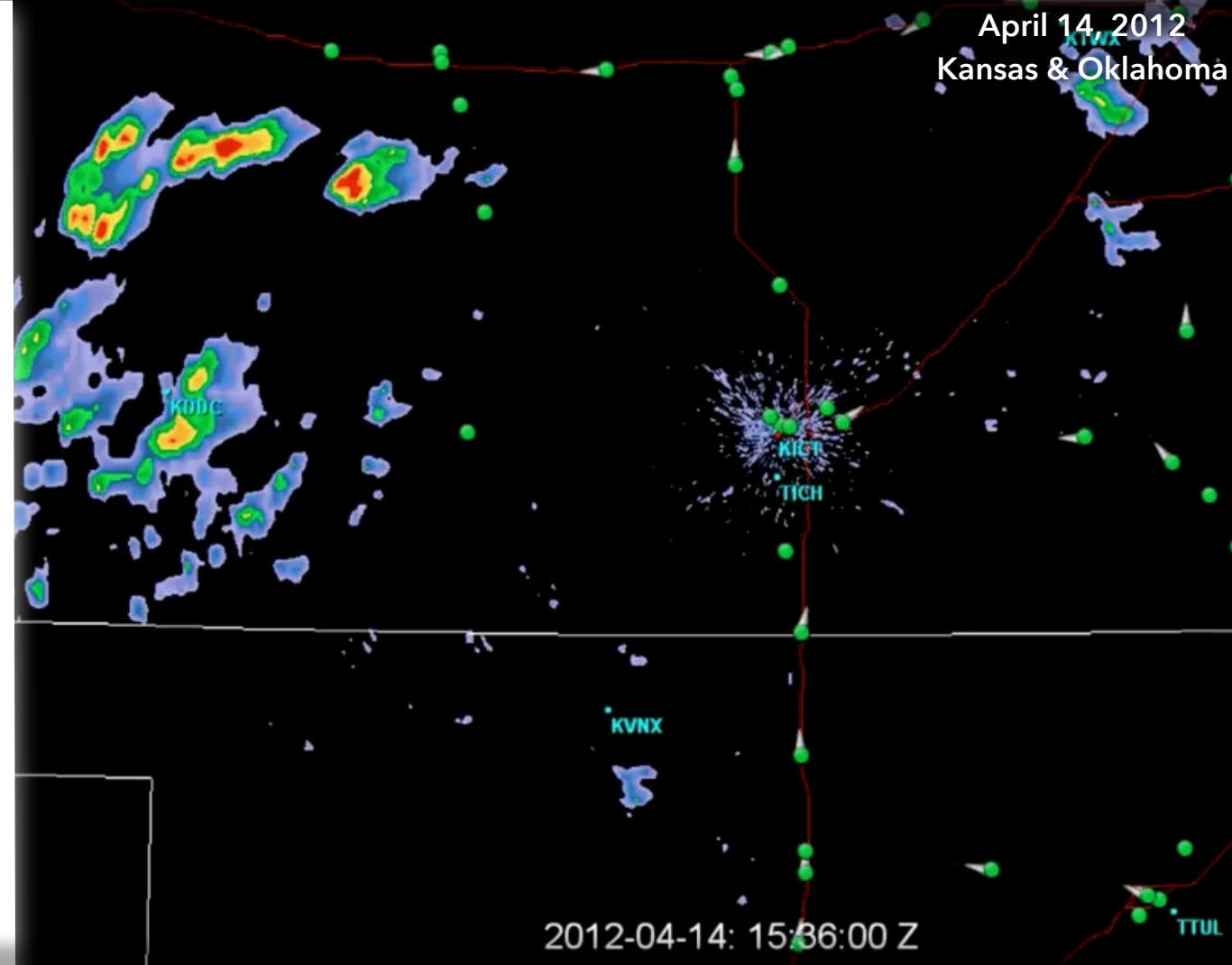
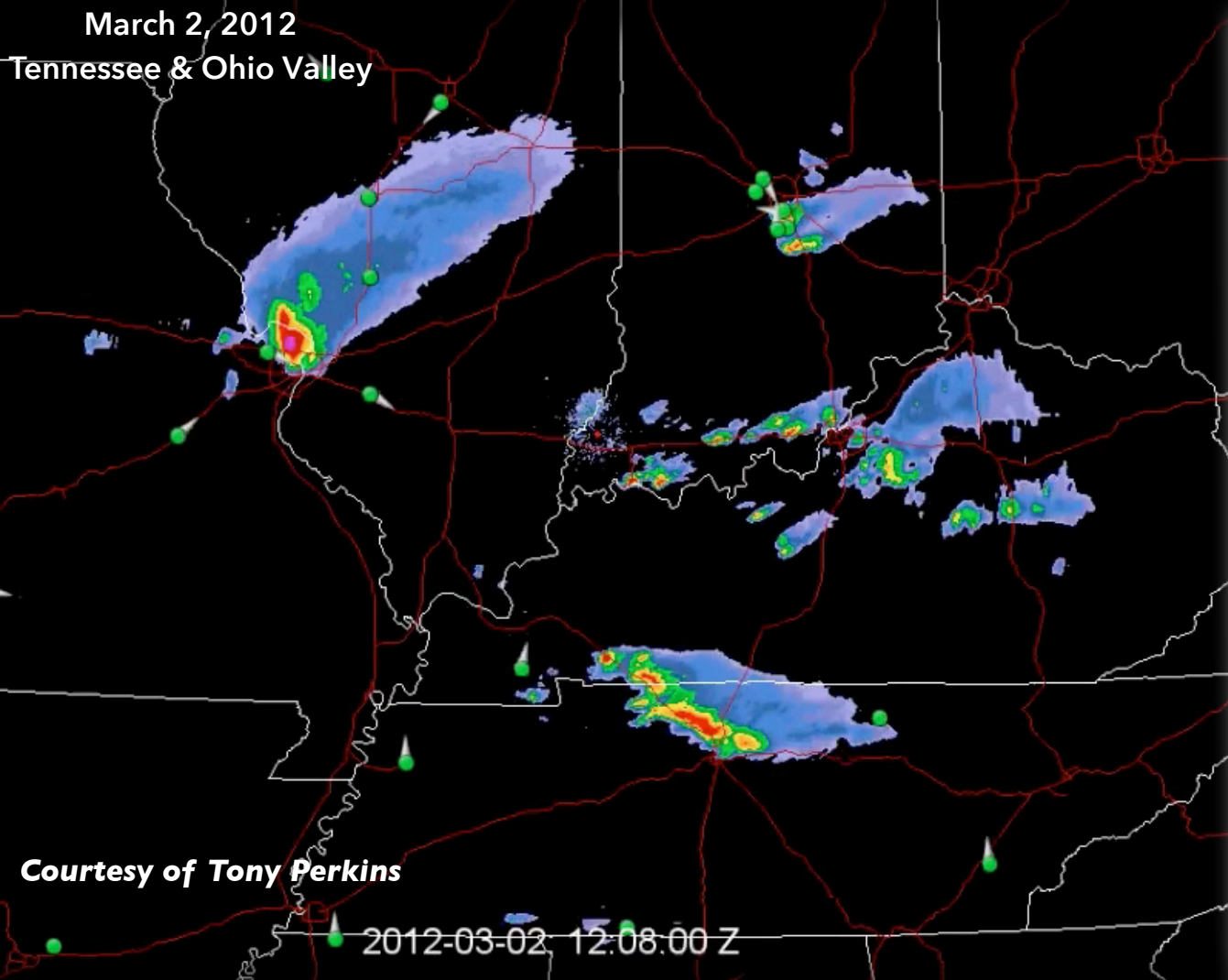
National
Spotter
Registry

Standardized
Training

Location
Tracking &
Reporting

SPOTTER NETWORK

SN



National
Spotter
Registry

STTARS

Standardized
Training

Location
Tracking &
Reporting

Spotter **T**raining, **T**racking **A**nd **R**eporting **S**ystem

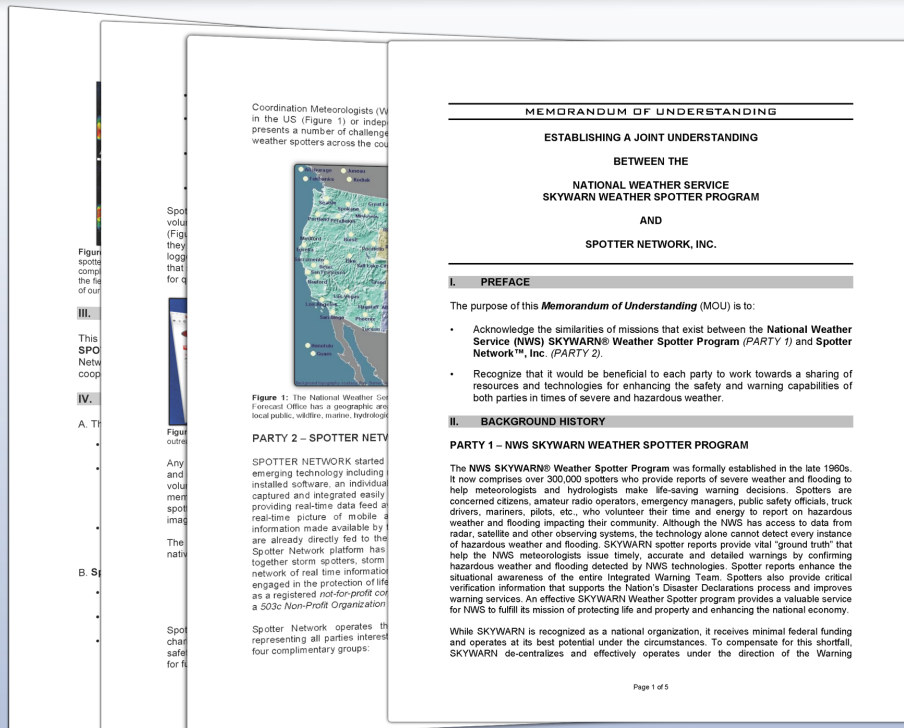
NWS SKYWARN



SPOTTER NETWORK

Partnership

Credited to the similarities in missions open table discussions lead to partnership in working together towards a sharing of resources and technologies.



Memorandum of Understanding
Completed in August 2012



- Strengthen and broaden existing partnership between Spotter Network and the NWS.
- Enable further cooperative ventures between the two organizations.

- Provide unrestricted access to Spotter Network data feed for both the storm report and spotter position data officered in a KML, XLM, or TXT file.
- Work with each NWS WFO to setup their own Spotter Network Member Network for spotters in their CWFA.
- Allow any certified SKYWARN weather spotter to complete the Spotter Network Awareness Level training and thereby have access to the network.

NOAA NWS **SN** INTEGRATION

The screenshot displays the NOAA eSpotter web application. The top navigation bar includes links for Home, News, Organization, and Search. The main content area shows a list of reports, with the first report selected and its details expanded. The report details include a date, time, location, county, state, and a description of the event. The interface is designed for users to submit and manage weather spotter reports online.

Report Details:

- Date:** 10/03/2006
- Time:** 0148 PM
- Location:** Chardon, KS
- County:** Rawlins
- State:** KS
- LSR Type:** 1.50 INCH HAIL
- Event:** 6 SW Chardon, KS 15 N Levant, KS 15 N Colby, KS Notes: test for ES from AP M Contact: (cell) 555.5555 albert.pietrycha@noaa.gov (59:kb0zxy)

eSpotter

An online reporting system to facilitate the submission of weather spotter reports online.

Pro

Useful webpage interface for receiving storm reports

Con

Requires real-time monitoring to view information

Storm Report Submission
Latency < 5 seconds

NOAA NWS **SN** INTEGRATION

NWSChat

An instant messaging program utilized by NWS operational personnel to share critical warning decision expertise and other types of significant weather information.

Pro

Passive way for forecasters to monitor storm reports including those from SN

Con

Need to educate users that SN reports are not sent from NWS offices

Storm Report Submission
Latency < 3 seconds

The image shows a screenshot of the NWSChat website and a chat window. The website header includes the NOAA logo and the text "NOAA's National Weather Service NWSChat". A search bar and navigation links are visible. A warning message states: "You are accessing a U.S. Government information system, which includes: 1) this computer, 2) this computer network, 3) all computers connected to this network, and 4) all devices and storage media attached". A button labeled "NWSChat Live! Access NWSChat Live." is present.

The chat window, titled "gldchat", shows a list of messages. A specific message is highlighted in a blue box:

(1:20:11 AM) nwsbot: GLD: **Unverified/Non-NWS Report** -- from Albert Pietrycha (via spotternetwork.org) @ 07:20 PM MDT -- (S) Other -- -- Event is 0 miles SW of Goodland, KS (Sherman county) [39.349/-101.711]-- IGNORE AS THIS IS A TEST TEST TEST FROM NWSGLD -PIETRYCHA (SN#12606)

The chat window also shows a list of participants on the right, including nwsbot, nwsfld-joe.moore, nwsfld-pietrycha, em-roger.c.brown, KAKE WeatherPlex, media-matt.makens, and media-merril.teller.

NOAA NWS **SN** INTEGRATION



WRKESP

REPORT TIME: 07/27/2012 19:20 MDT (01:20 UTC)
1343438414.5426

EVENT TIME: 07/27/2012 19:20 MDT (01:20 UTC) (EXACT)

COUNTY, STATE: Sherman, KS

CITY: 0 miles SW of Goodland, KS

SPOTTER: reports@spotternetwork.org

OTHER REPORT

NO INJURIES REPORTED

NO DAMAGE REPORTED

NARRATIVE: Event is 0 miles SW of Goodland, KS

[39.34920000000000/-101.71140000000000]

6 miles ENE of Caruso, KS

9 miles W of Edson, KS

Notes: IGNORE AS THIS IS A TEST TEST TEST FROM NWSGLD

-PIETRYCHA

Contact:

(phone) 999-999-999

(no email)

(12606)



AWIPS

A technologically-advanced processing, display, and telecommunications system that is the cornerstone of the NWS operations.

Pro

Can be setup with trigger text alarm whenever a report is submitted.

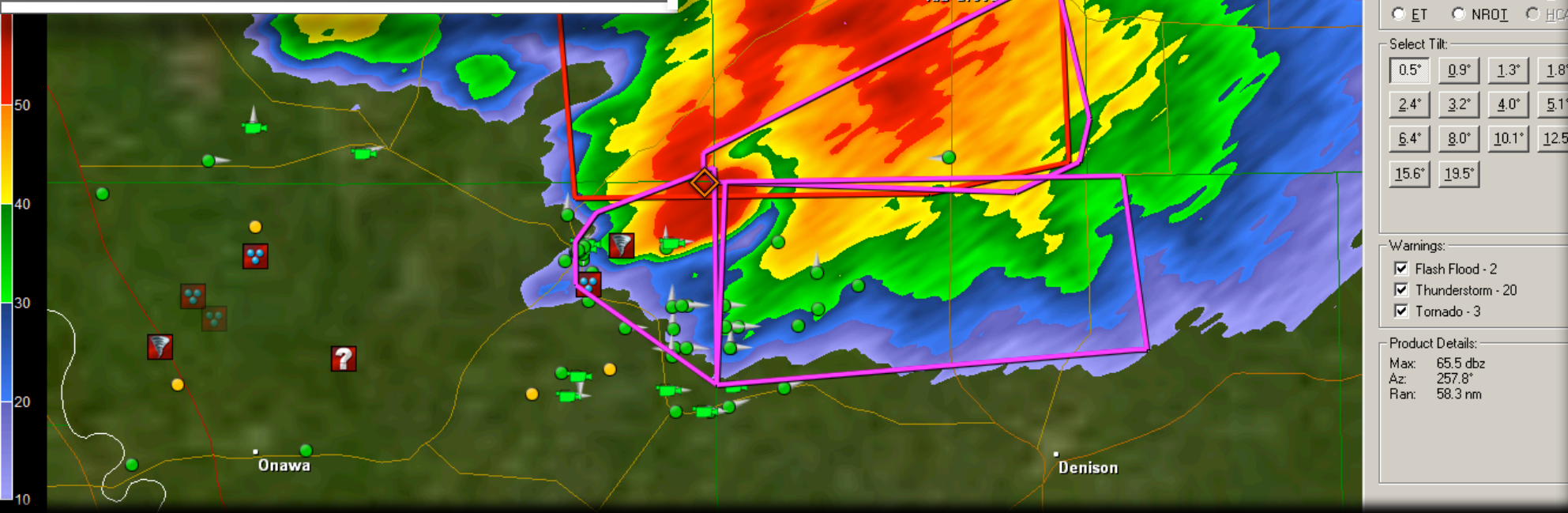
Con

Higher latency of up to 45 second from the time a report is sent to alarm trigger.

Storm Report Submission
Latency up to 45 seconds

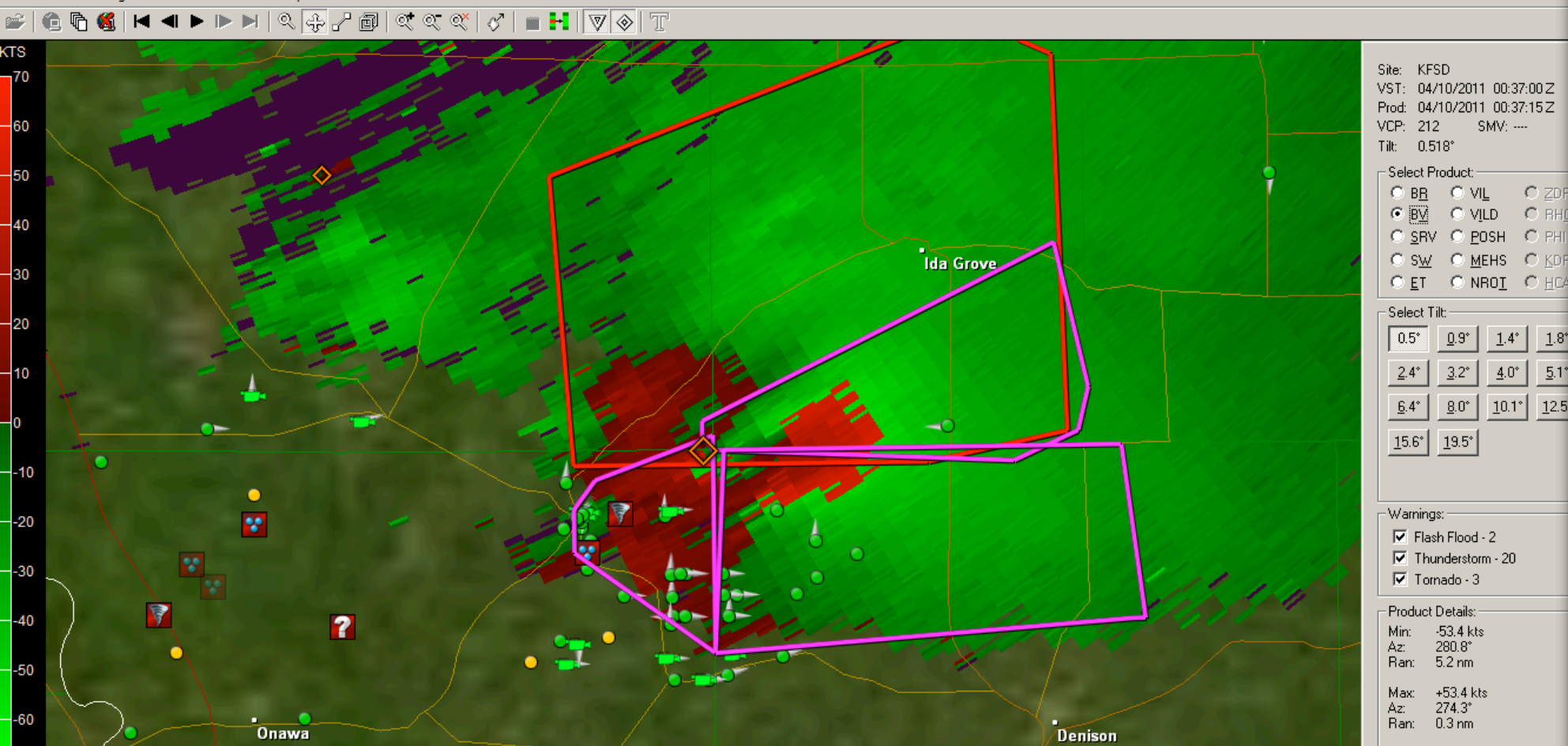
To acknowledge this report, go to: <http://intra.crh.noaa.gov/espotter/>
Log in, and click 'Acknowledge Incoming' to mark reports as received.

GRLEVELX RADAR VIEWER

KFSD Sioux falls, SD - GR2Analyst

File View Site Algorithms GIS Windows Help



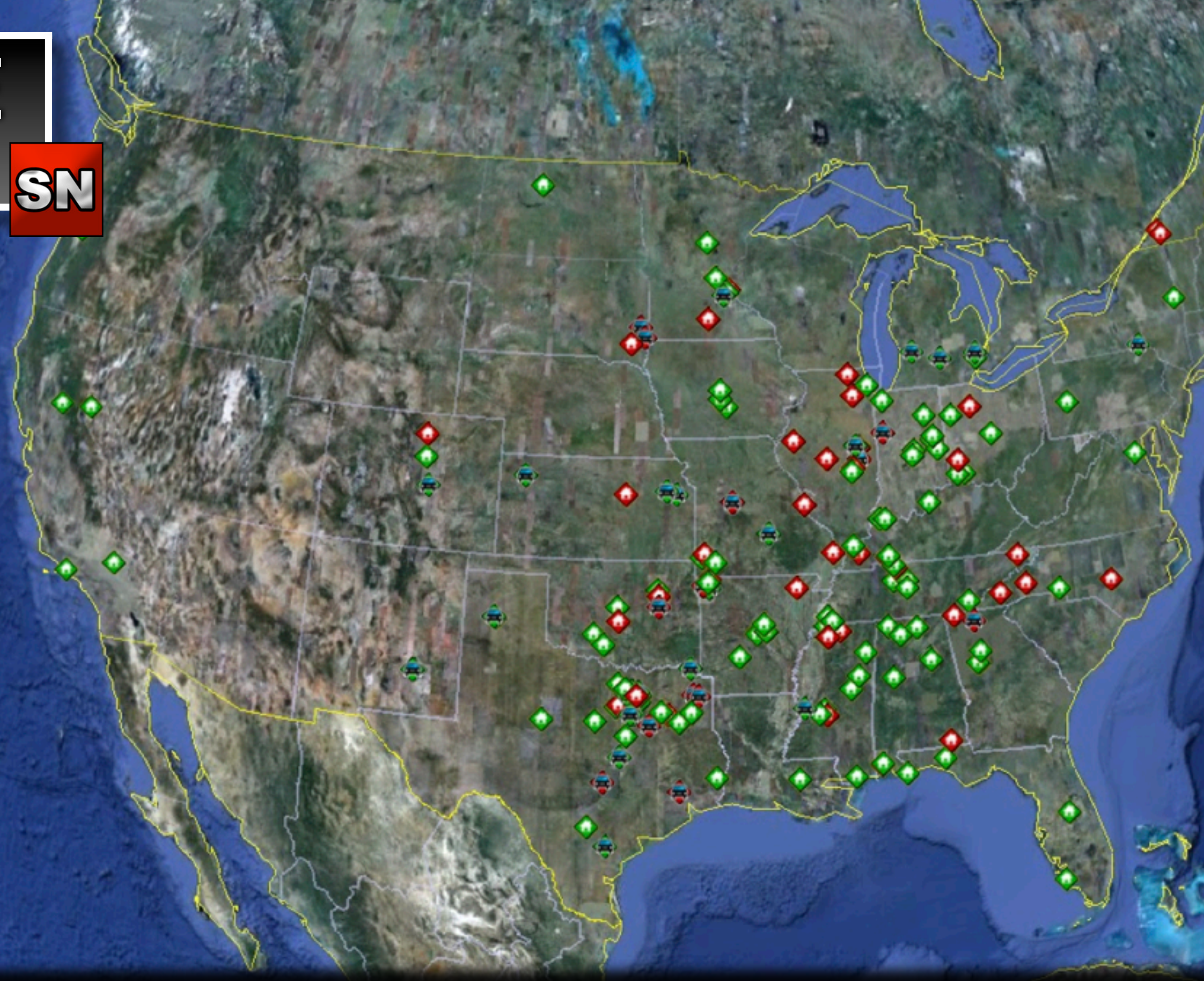
Public Data Feeds Options

- ▶ Storm Reports Only
- ▶ Positions of All Trained Members
- ▶ All Positions and All Reports Combined
- ▶ Video Streamers Only
- ▶ Positions of members with > 5 'Acceptable' or better reports in past 12 months

Available @
spotternetwork.org/gr-feeds.php

GOOGLE
EARTH

SN



Public Feed Available @ spotternetwork.org/feeds/earth.kml

GOOGLE EARTH

SN

National Weather Service GIS x
www.srh.noaa.gov/gis/kml/

National Oceanic and Atmospheric Administration
National Weather Service

Site Map News Organization Search Enter Search Here Go

Local weather forecast by "City, St" City, St Go

RSS Feeds XML

Watches/Warnings Current By State/County UV Alerts more...

Observations Doppler Radar Satellite Snow Cover Surface Weather Observed Precip more...

Forecasts By Local Office Graphical Aviation Weather Marine Weather Hurricanes Severe Weather Fire Weather Numerical Models Statistical Models more...

Text Messages By State By Message Type National

Climate Past Weather Predictions

Weather Safety Weather Radio Hazard Assessment StormReady

National Weather Data in KML/KMZ formats

The National Weather Service produces several data sets that are available in formats available to import into Geographic Information Systems (GIS). GIS is a collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. It takes the numbers and words from the rows and columns in databases and spreadsheets and puts them on a map. [Looking for shapefiles?](#)

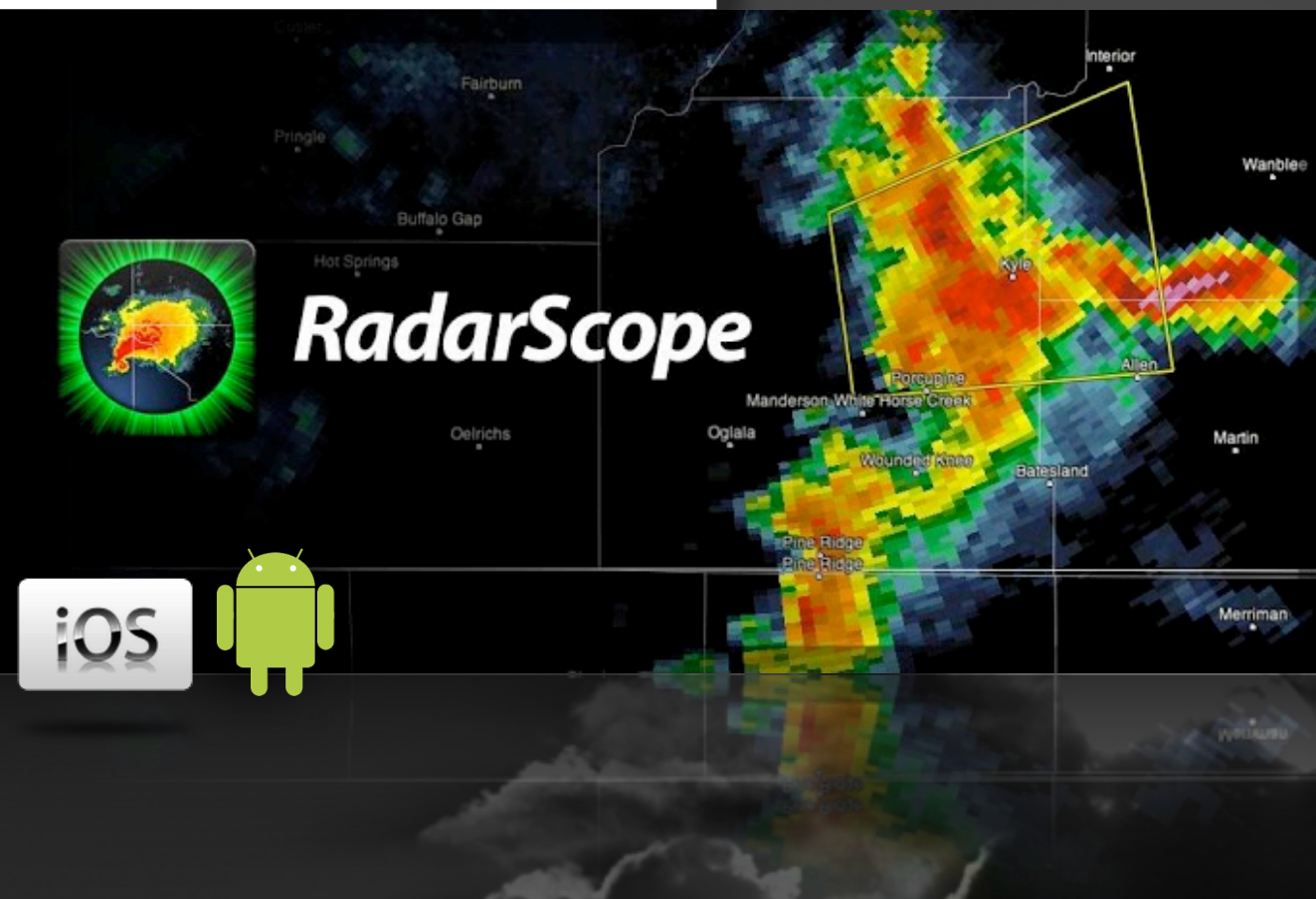
The following links will either provide kml/kmz files, will link you to a page with these type of files, or displays info in a GIS viewer.

Current Weather	Forecasts	Past Weather
Watches & Warnings Current Weather Warnings Severe Weather Watches and warnings (includes SPC outlooks) Flash Flooding - Basins and Streams	Your Local Weather Forecast MOS Guidance GFS Meteograms GOES Sounding Skew-T Tulsa area: Max Min POP River Gage Forecasts Tropical Cyclone forecast models Significant River Flood Outlook Quantitative Precipitation Forecasts (QPFs) SPC Convective Outlooks: Day 1 Convective Outlook Day 2 Convective Outlook Day 3 Convective Outlook Day 4 to 8 Convective Outlook SPC Fire Weather Outlooks: Day 1 Fire Weather Outlook Day 2 Fire Weather Outlook	Doppler Radar NWS Radar archive data Normals, Means, Extremes NCDC Climate Atlas of the United States NCDC GIS Portal Severe Weather Storm Reports: Tornado, Wind and Hail 1950-2006 Database: Tornado, Large Hail, and Damaging Wind Reports Tornadoes: 1950-2006 track and icons Rain/Snowfall CoCoRaHS Observations NOHRSC Snow Data Hurricanes Past Atlantic Storm Tracks Past East/Central Pacific Storm Tracks
Doppler Radar Real Time Radar CONUS radar from NSSL Radar Locations	Surface Observations Metar Obs RAWS Obs APRSWXNET Obs MesoWest Obs Other Surface Obs From NSSL 10-minute Surface Observations Hourly Observations	
Satellite Satellites	Remote Gages River Gages: Observed Snow Gages: w/ labels w/o labels	

Complimentary Addition to Other NWS KML Ready Data


Public Feed Available @ spotternetwork.org/feeds/earth.kml

MOBILE APPS **SN**



RadarScope

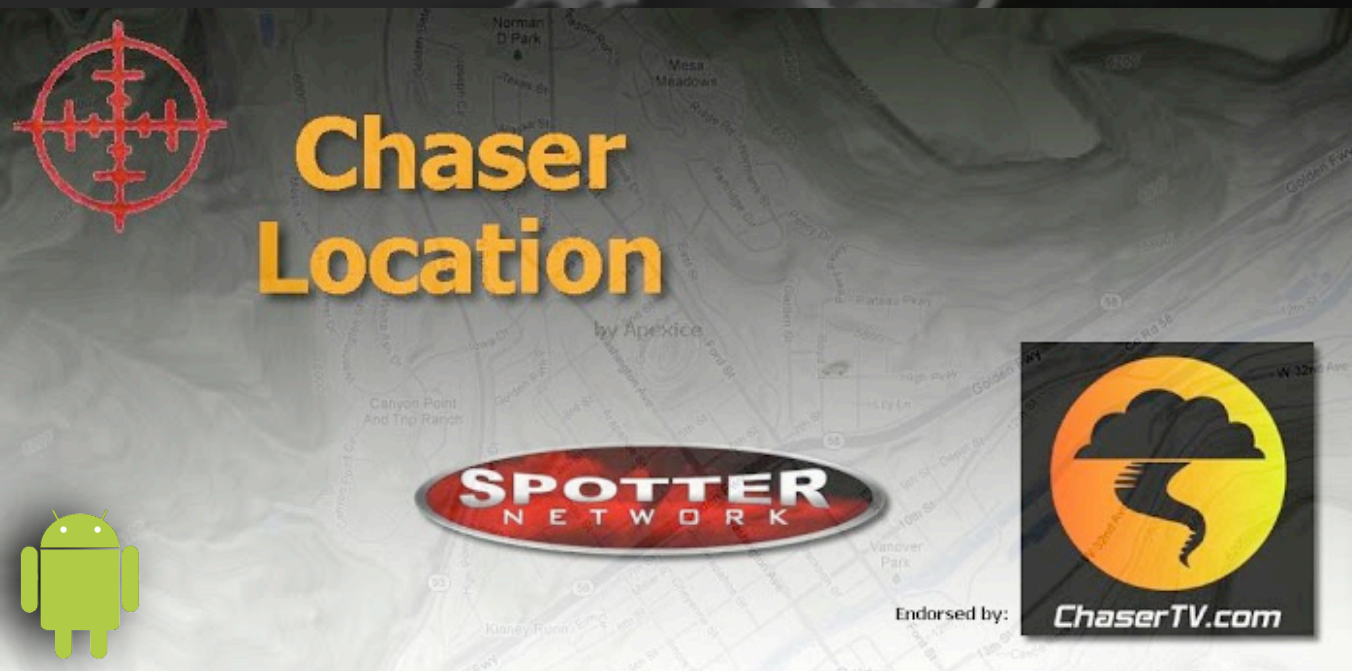
iOS



P3 PYKL3 RADAR

Weather data when you need it...where you need it

Radar
Satellite
Warnings
Outlooks
Observations




Chaser Location

by Apexice

SPOTTER NETWORK

Endorsed by: **ChaserTV.com**



RapidReport

by Apexice

SPOTTER NETWORK

facebook

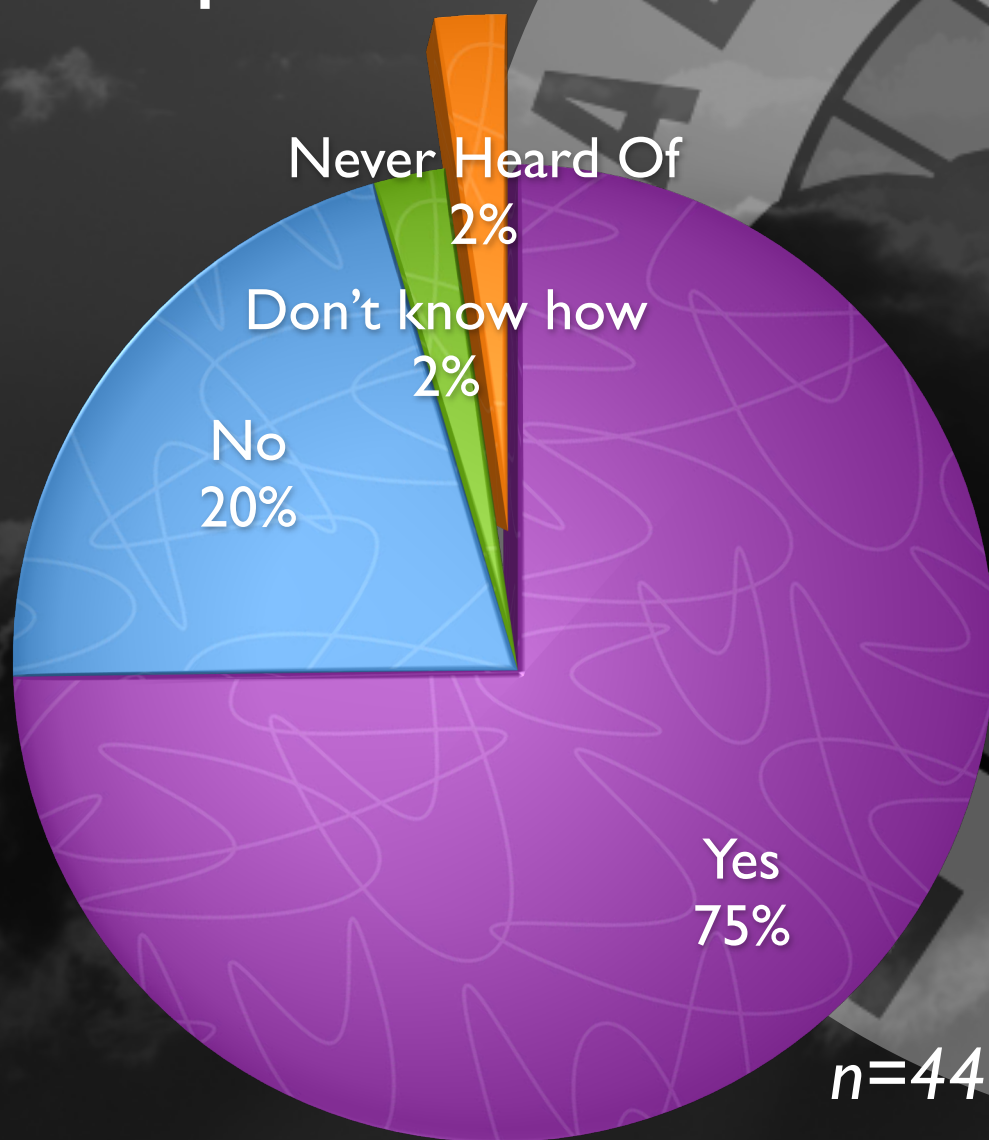
ChaserTV.com



NOAA NWS FEEDBACK



WFO Use Spotter Network



View Spotter Network Storm Reports

NWS Chat	59.09%
GRLevelX Radar Software	43.18%
SpotterNetwork.org Website	31.82%
AWIPS	20.45%
PYKL3 Radar	13.64%
RadarScope	11.36%
Google Earth	9.09%

View Spotter Network Position Reports

GRLevelX Radar Software	47.73%
SpotterNetwork.org Website	40.91%
PYKL3 Radar	18.18%
RadarScope	11.36%
Google Earth	6.82%
Don't Use It	6.82%
Chaser Location	2.27%

Consensus of feedback provided insight that Spotter Network is used as both real-time operational tool and post-storm tool by several NWS offices.

Enhanced Storm
Reporting

Submission of
Photos/Videos

Standalone App

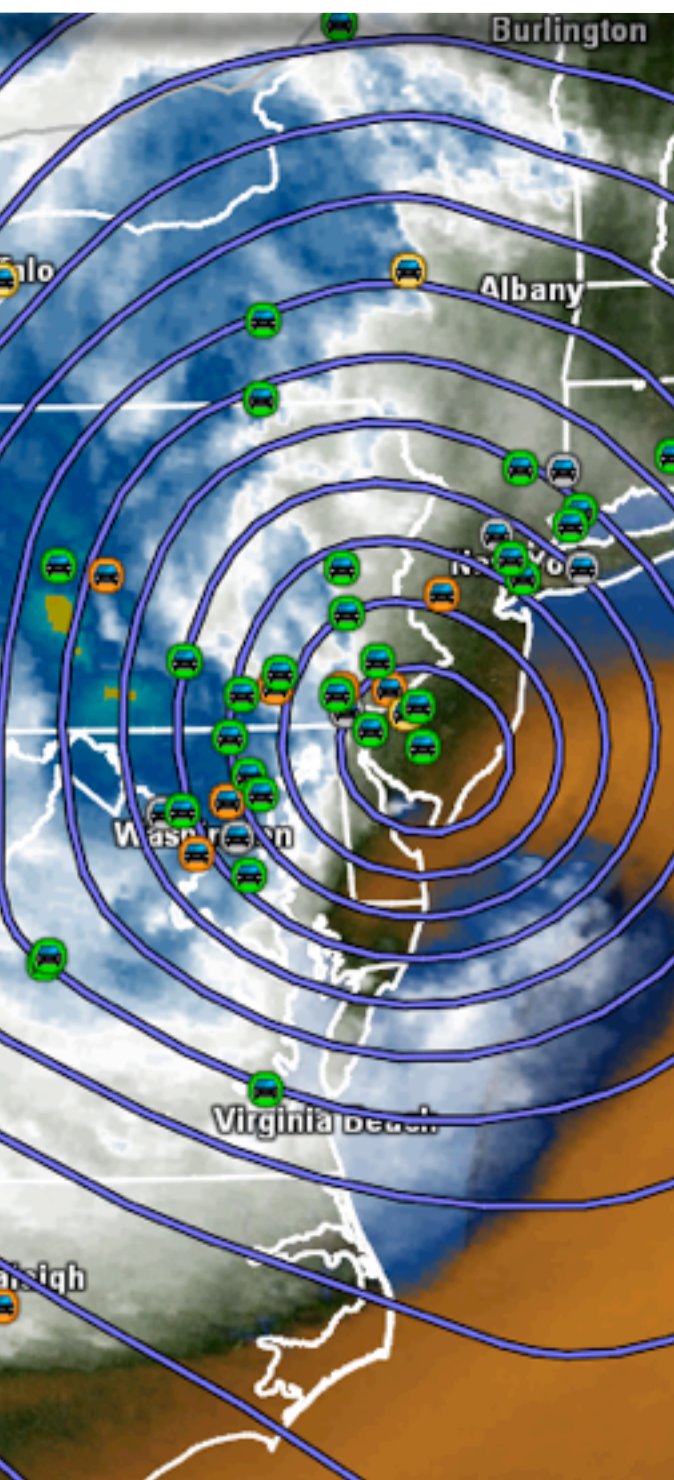
Integration of
Live Stream

Full Screen
Online Map

Advanced
Filtering Options

SPOTTER EXPANDING ROLE

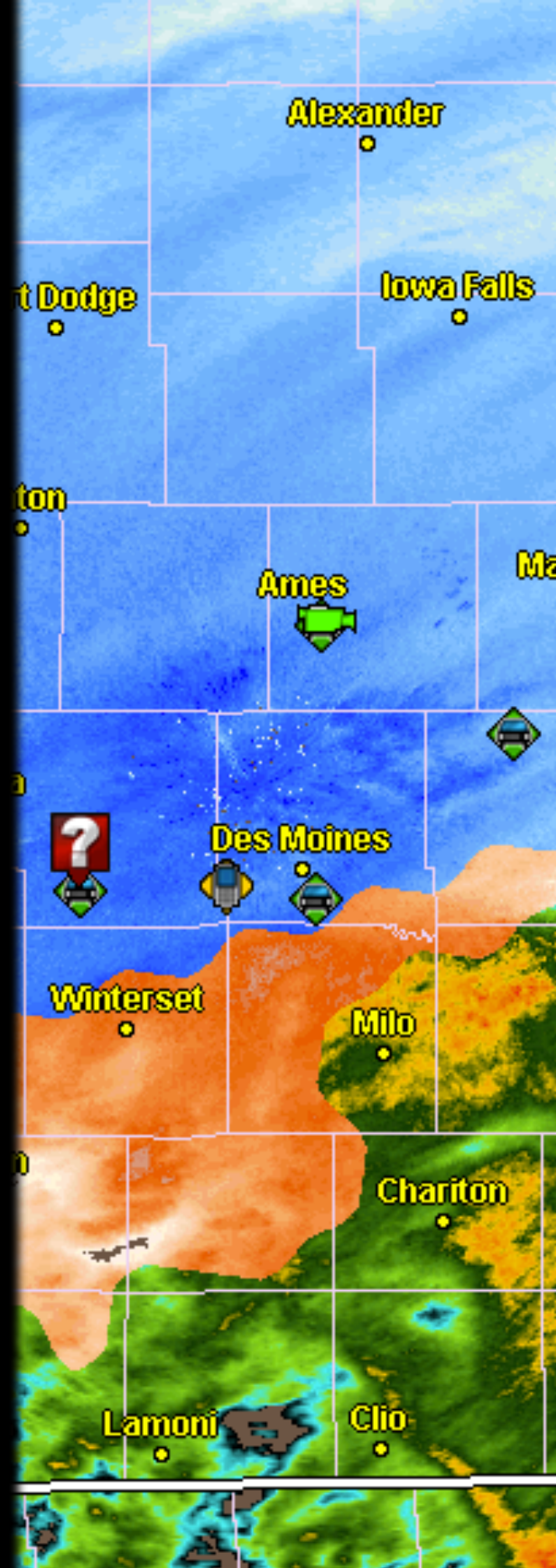
SN



Tropical



Fire



Winter



Wind

PUBLIC SAFETY COMMONGROUND BROADCAST MEDIA

From
Emergency
Operations
Centers



Courtesy of ci.frisco.tx.us

From National
Cable News
Channel



Courtesy of The Weather Channel

The
Weather
Channel



to rural
volunteer Fire
Departments

Courtesy of Allen Detrich



to Local News
Television
Stations

PUBLIC SAFETY COMMONGROUND BROADCAST MEDIA

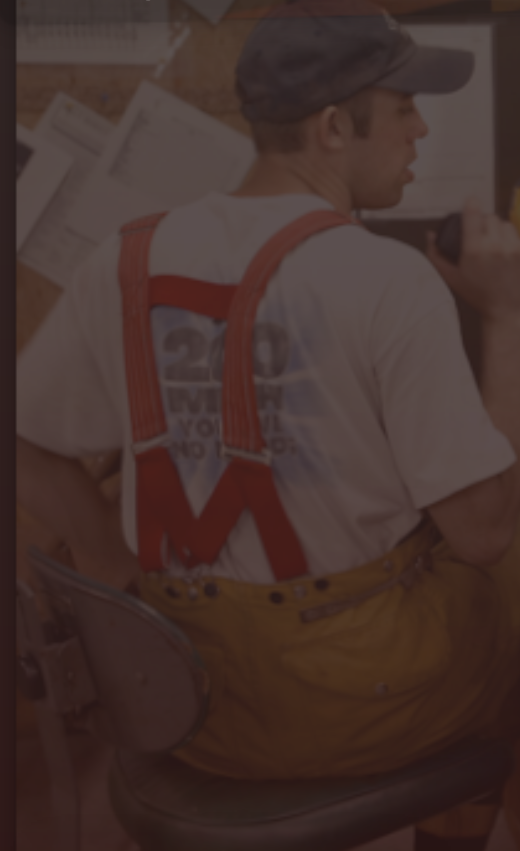
From
Emergency
Operations
Centers

Heavy Reliance on
NWSSChat

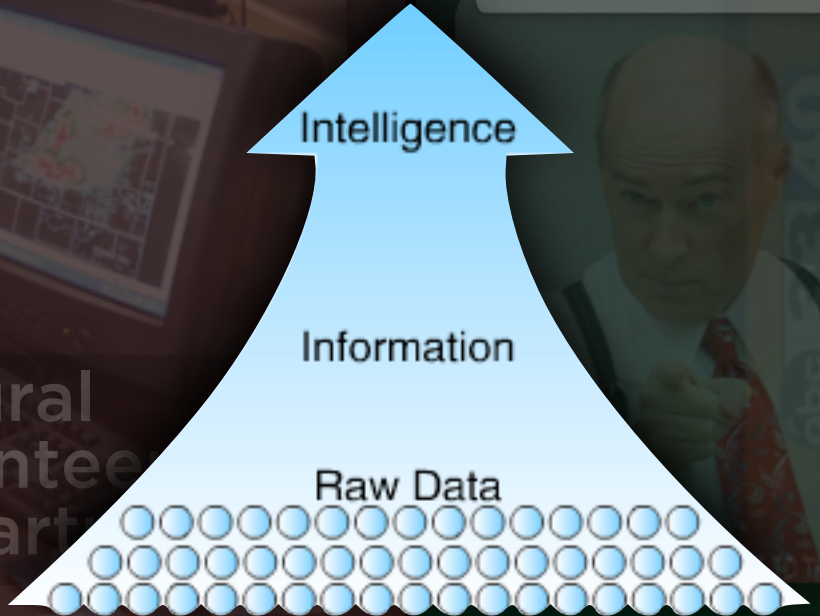
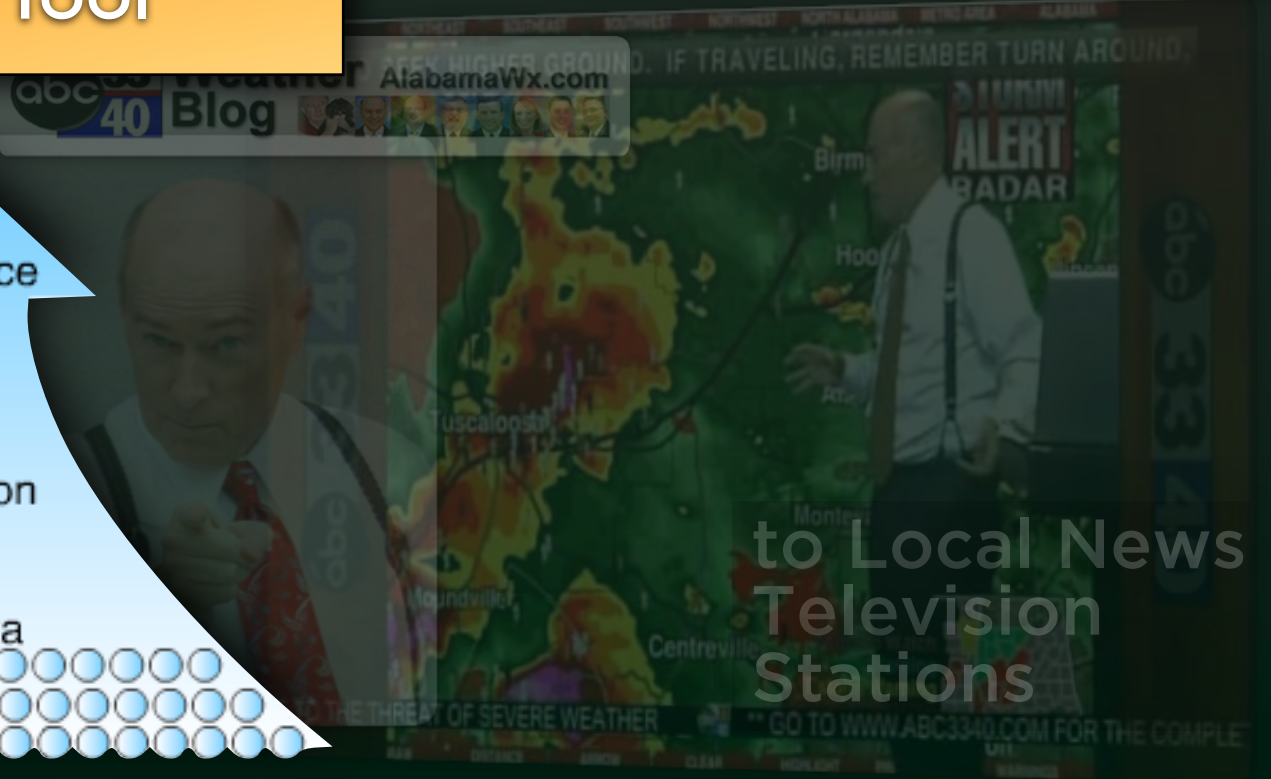
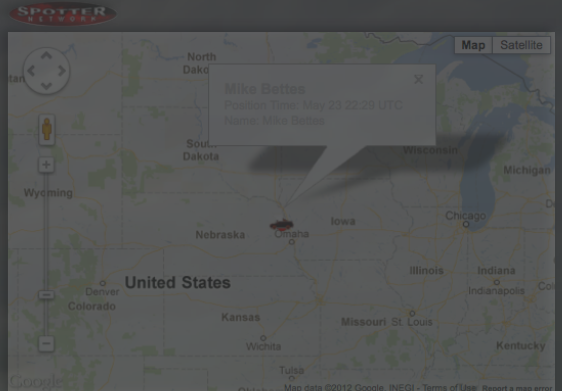
Graphical "Situational
Awareness"

Logistic & Decision
Support Tool

Courtesy of ci.frisco.tx.us



Courtesy of Allen Detrich



to rural
volunteer
Depart

to Local News
Television
Stations

The logo for Spotter Network is an oval with a red, textured background. The word "SPOTTER" is written in large, white, 3D block letters across the top, and "NETWORK" is written in smaller, white, 3D block letters below it.

SPOTTER NETWORK

www.SpotterNetwork.org

How to Get Started? Easy!

Step 1 - Register Online

Step 2 - Download the SN Client or Mobile Apps

Step 3 - Get Some Training

Step 4 - Start Spotting!

A WEATHER-READY **NATION**

through enlarging
TECHNOLOGY INFRASTRUCTURE
ALL-HAZARD **TRAINING**

