

NOAA - National Weather Service

NWS Education Program

Products and Services

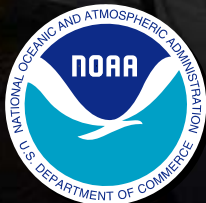
Ron Gird
Dennis Cain

NOAA - National Weather Service

ESIP Educators Workshop

Santa Barbara, CA

July 9, 2009



"America's Weather Enterprise: Protecting Lives, Livelihoods, and Your Way of Life"

Agenda

- **Introduction to the National Weather Service**
- **NWS Education Products**
- **NWS Services**
- **NWS Partnerships**
- **Activities**

Challenges We Share

**Globally and annually
USA has the most severe weather**



2003
53% Population
lives in the 673
Coastal
communities

NWS Education

- **Products**
- **Services**
- **Partnerships**

NWS Education Products

New National Weather Service Education Products

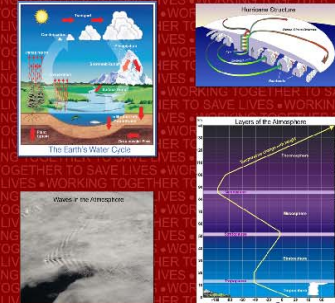
Owlie Skywarn Weather Book



Xtreme Weather CD



Jetstream Web site

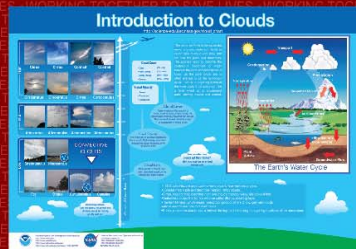
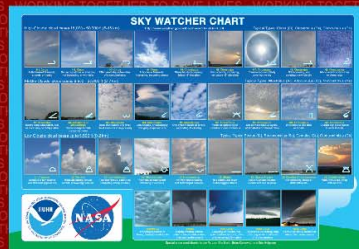


Preparedness guide for children. Elementary School grades 2-6. Young students learn weather can be fun. Publication includes games and activities.

Educational tool for teachers discussing science and safety as it relates to weather phenomenon. Meets middle school math and science standards. Exciting weather videos, introduce by "Mother Nature" in a classroom setting.

Jetstream web site is a tool for teachers and students to learn about the atmosphere. Lots of weather information for the citizen scientist. Interested in a career in meteorology or hydrology? Check out our web site. www.srh.noaa.gov/jetstream.gov

Cloud Charts



Introduction to the science of clouds observations. Learn about how clouds tell the story of your local daily weather. For more information visit the web site. www.weather.gov/crochutes/cloudchart.pdf

Bookmarks

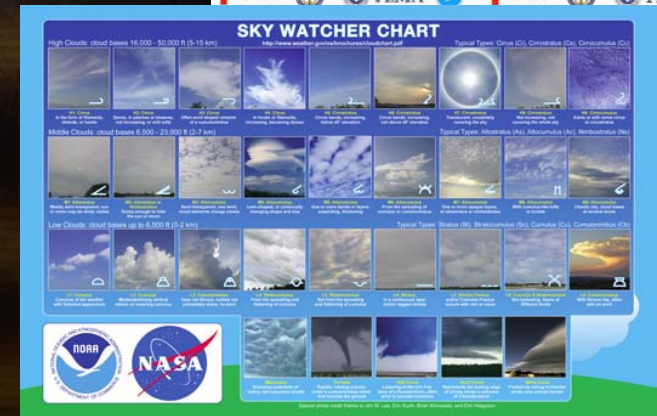


NOAAWatch and Jetstream Bookmarks highlight information that can be found on the Jetstream web site (www.srh.noaa.gov/jetstream) and the NOAAWatch web site (www.noaa.gov)

"America's NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life"

NWS Education Programs

- **Formal**
 - *Xtreme Weather CD*
- **Informal**
 - *Weather Woodles Slide show (40)*
 - *JetStream web site*
 - *Owlie Skywarn Weather Activity Book*
 - *Billy and Maria Visit NWS Coloring Book*
 - *NOAA/NASA Sky Watchers Cloud Chart*
- **Outreach**
 - *Boy Scouts/Girl Scouts Weather Merit Badge Camps*
 - *National Awareness Weeks*
 - *Weather Forecast Office Open House events*
- **NWS Education Resource Web List**

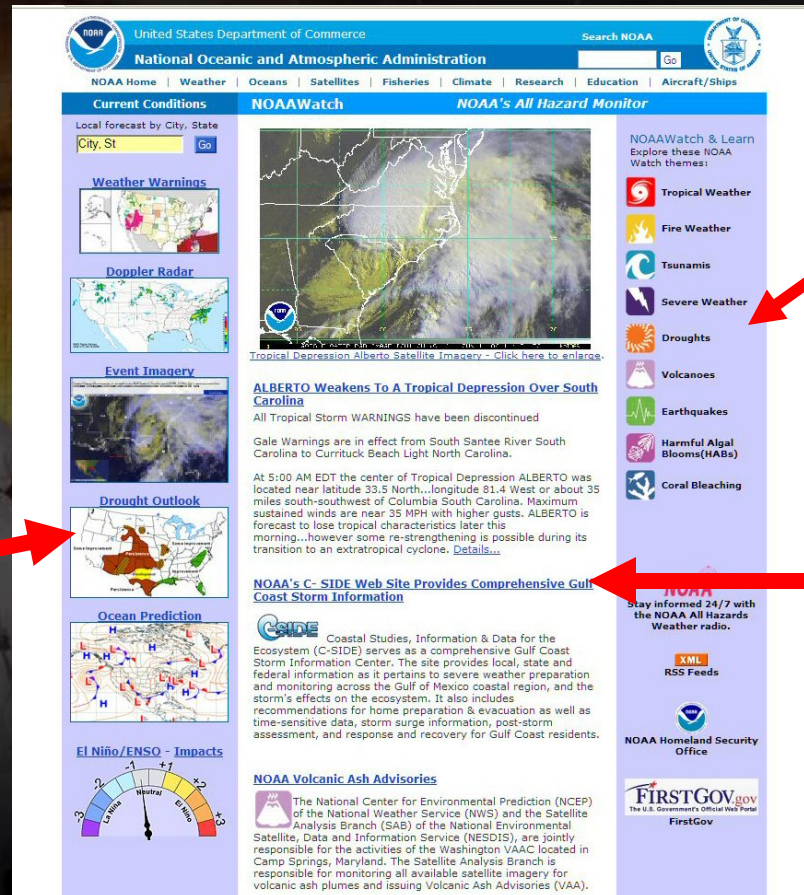


New Public Web Site

• **www.noaawatch.gov**

access to
current
environmental
hazards and
events

Data



**Background
Information**

**Daily
Stories**

NWS Local Capabilities

- **Field Offices**

- **122 Weather offices**
- **13 River Forecast Centers**
- **School visits**
- **Publications**
- **Promotional Material**
 - **Magnets**
 - **Posters**



"America's NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life"

Diversity and Recruitment

Classroom visits-2400/year

Talks at Museums/Science on a Sphere

Summer Students in NWS offices

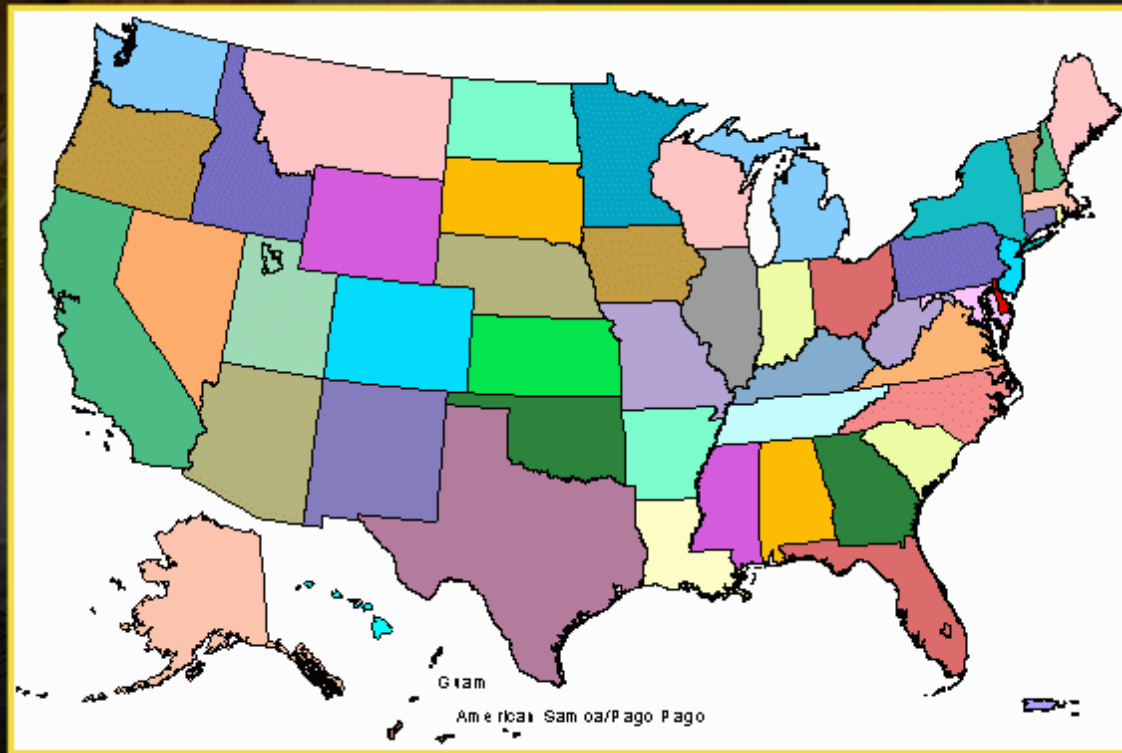
Summer Weather Camps



Local NWS Offices

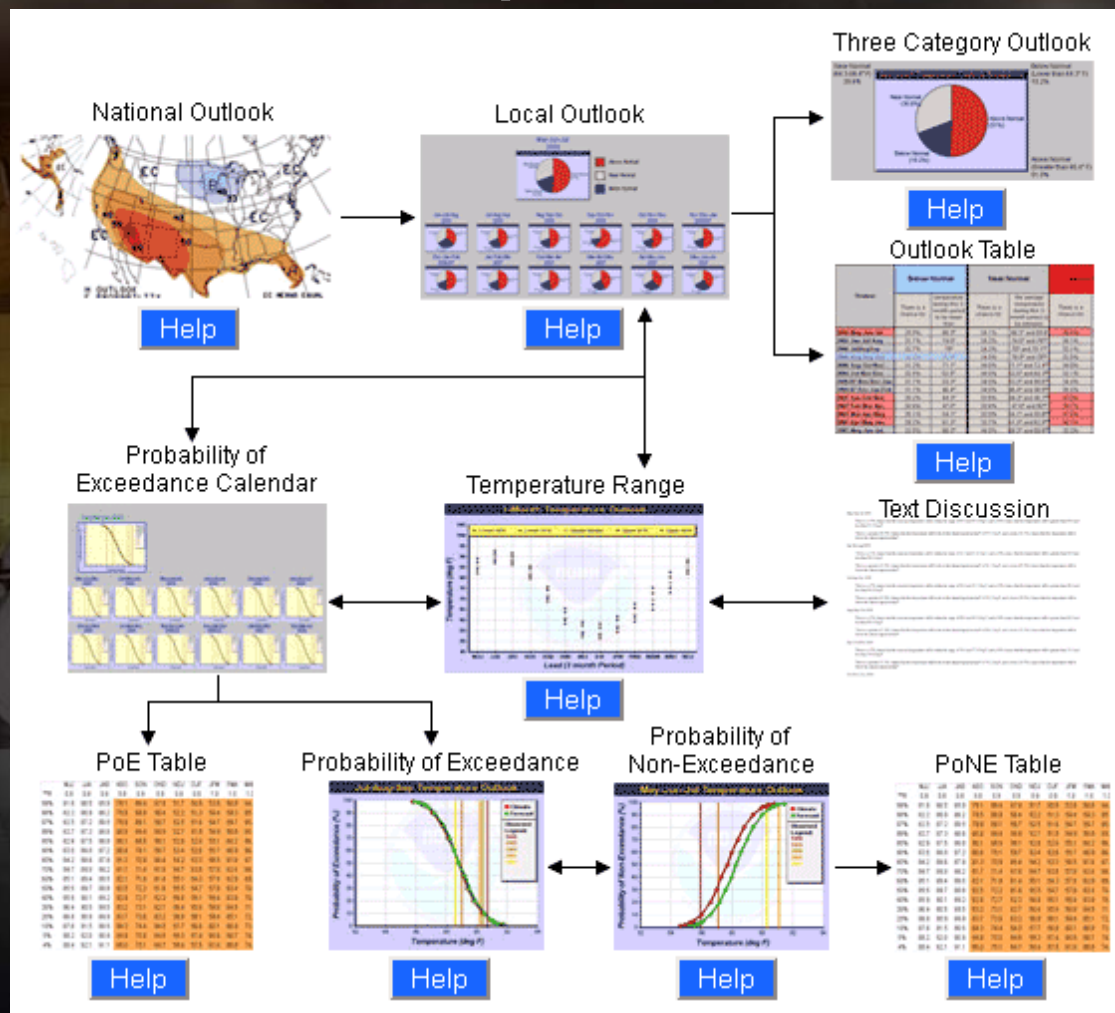
Locate the Warning Coordination Meteorologist serving your area:

<http://www.stormready.noaa.gov/contact.htm>



Local Climate Products

Local 3-Month Temperature Outlook



NWS Climate Services

- Download free fact sheets at:
 - <http://www.weather.gov/os/brochures.shtml>



NWS Education

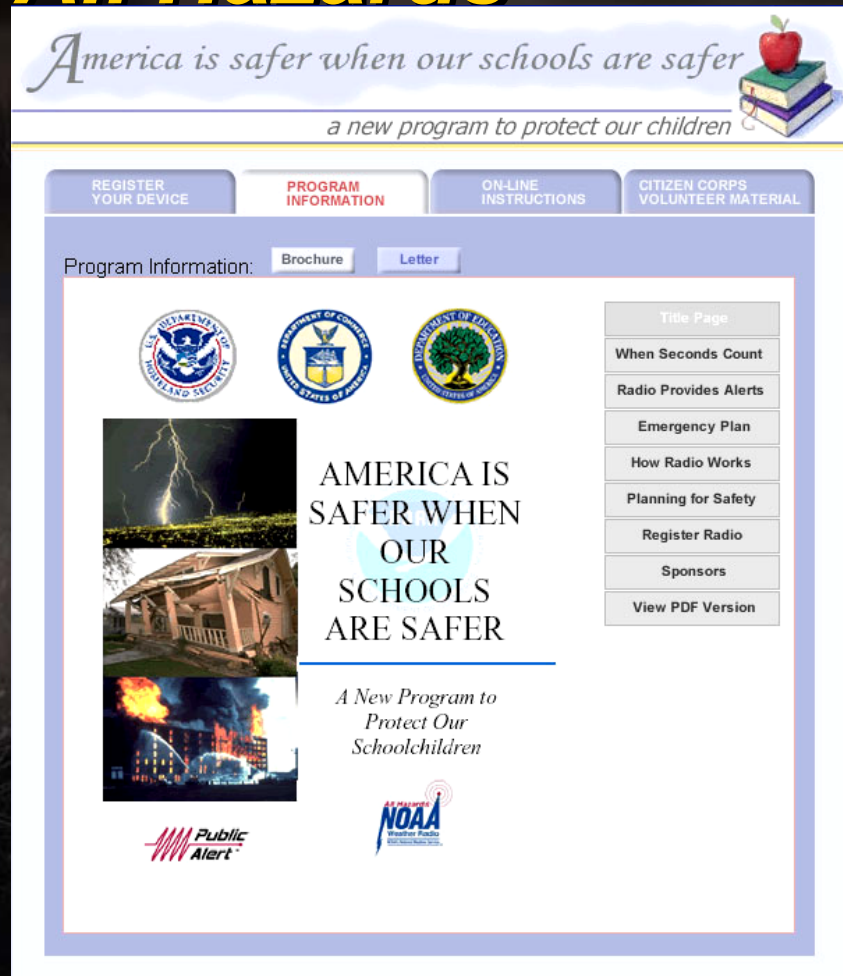
- Products
- **Services**
- Partnerships

Community Teamwork

NOAA Weather Radio All Hazards

When Seconds Count

- **Public School Campaign**
 - 280,000 Radios
 - Every Public School in America
- **Partners**
 - DHS Citizen Corps
 - NOAA NWS
 - DOE Office of Safe and Drug-Free Schools



<http://public-alert-radio.nws.noaa.gov>

Boy/Girl Scouts Weather Badge

NATIONAL WEATHER SERVICE'S



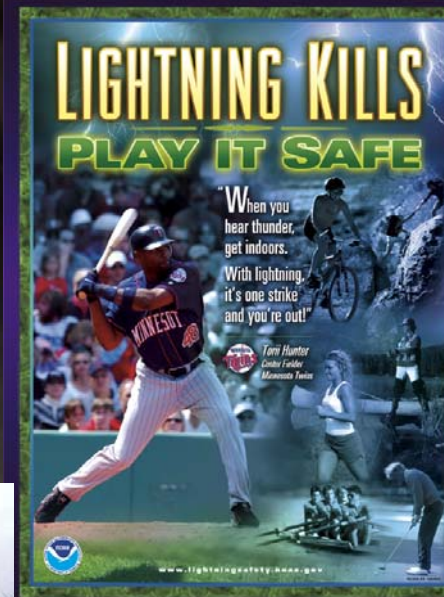
BOY SCOUT



WEATHER MERIT BADGE COURSE

"America's NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life"

Awareness Campaigns



National Weather Service
Forecasts and Warnings to Save Lives



www.weather.gov

National Weather Service
Forecasts and Warnings to Save Lives



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"America's NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life"

The Storm Spotter Program

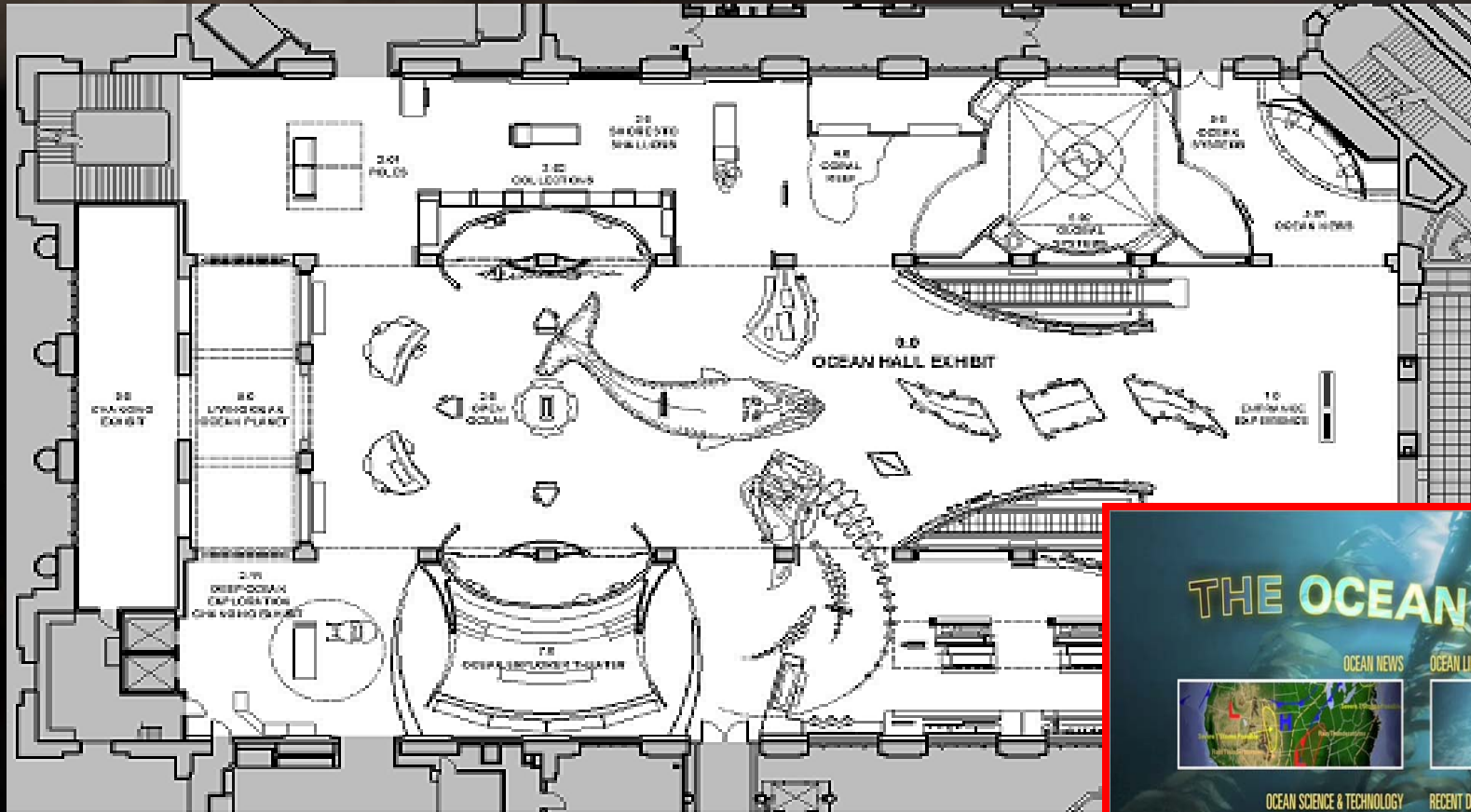


“America’s NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life”

NWS Education

- Products
- Services
- Partnerships

Smithsonian Ocean Hall



Hurricanes



“America’s NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life”

Informal Education

- **Science on a Sphere**
 - *create compelling displays of global data*
 - *in partnership with informal learning institutions*
 - *Over 30 locations*
- **Satellites and Education Conference**
 - *West Chester University, PA*
 - *California State University-Los Angeles*
 - *August 13-15, 2009*
 - *Satellite data and services for the classroom*
 - *Uses of Satellite data*
 - *National Weather Service*



Partnerships Promote Progress

- American Meteorological Society
- Illinois Education Association
- American Geological Institute
- NASA
- Red Cross
- Department of Homeland Security
- National Geographic Society
- Science Museums/Centers



**American
Red Cross**



**National Environmental
Education Foundation**
Knowledge to live by

American Meteorological Society

- **Teacher Training**
 - ***Project Atmosphere***
 - **Veterans and “Rookies”**
 - ***DataStreme***
 - **On-Line Course**
 - **Local Forecast Office staff support**
- **Student Education**
 - ***Annual Graduate Fellowship***
 - ***Student Career Workshop at annual meeting***
- **General Public**
 - ***Annual WeatherFest event for the Public***
 - **“hands-on” science activities**
 - **4000 residents attend**



Government Partnerships

- **NASA**

- *Huntsville-Sky Watchers Cloud Chart*
 - 500,000 distributed in first year
- *JPL Sci-Jinks (student activities)*
- *NASA eclips (New)*
- *Meteorology Text Book for Middle Schools*



- **Homeland Security & Dept of Education**

- *Free NOAA Weather Radio in all public schools*
- *FY09 Distribution to private schools*
- *Total: 280,000 distributed*



Government Partnerships



Meteorology: An Educator's Resource for Inquiry-Based Learning for Grades 5-9

Dr. Joseph D. Exline Dr. Arlene S. Levine Dr. Joel S. Levine

www.nasa.gov NP-2006-08-97-LaRC



NWS Support:

**Reviewed-4 NWS Subject
Matter Experts**

NWS Content

JetStream material

Cloud Wheel

NOAA-NASA Cloud Chart

Museum Partnerships

- **Science Spectrum, Lubbock, TX**
 - *Entire facility inside the museum*
 - *Joint weather exhibits*
- **Nauticus, Maritime Center, Norfolk, VA**
 - *NOAA staff permanent offices*
 - *NOAA Education Resource Center*
 - *NOAA exhibits (weather oceans climate)*
 - *Boy Scout/Girl Scout Weather Badge Camps*
- **Aquarium of the Pacific**
 - *One-NOAA Kiosks (2) on site*
- **Whitaker Science Center, Harrisburg, PA**
 - *Pre College recruitment/Science on a Sphere*



Partnerships

- **American Red Cross**
 - **Masters of Disaster**
 - Teacher and Students
 - Grades K-8
- **Environmental Protection Agency**
 - **The SunWise Program**
 - Teachers and Students
 - UV-Index/Skin Cancer Awareness

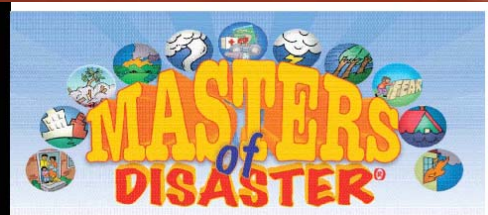


Superior Quality

Fun and Interactive

Flexible

Easy to use



Masters of Disaster Educator's Kit

Help youth become more prepared

The American Red Cross *Masters of Disaster* curriculum is centered on a series of ready-to-go lesson plans that help organizations educate youth about important disaster safety and preparedness information. The curriculum uses fun and engaging lessons to educate children. This tool provides educators with meaningful hands-on, interactive ways to help children understand important concepts on preventing, preparing for, and responding to both natural and human-caused disasters.

Easy to integrate

Activities are independent—you decide which are most important for your students. The curriculum flexibility allows you to choose what will complement the lessons you are already teaching. Lessons meet national educational standards—to reinforce student academics while building life skills—and are specifically tailored for lower elementary (K-2), upper elementary (3-5), and middle school (6-8) classes. The kit includes a CD with all lessons and activity sheets, stickers, a poster and a DVD in English and Spanish about safety for disasters.

Each Masters of Disaster® Educator's Kit includes activities for—

- | | |
|------------------------------|---------------|
| • Be Disaster Safe | • Earthquakes |
| • Facing Fear | • Floods |
| • In the Aftermath | • Hurricanes |
| • Home Safety | • Lightning |
| • Fire Prevention and Safety | • Tornadoes |
| • Wildland Fires | |

For more information, contact your local American Red Cross chapter or log on to www.redcross.org/disastereducation.



Join the Red Cross in building culture of preparedness among young people today!!



“America’s NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life”

Partnerships

- **National Environmental Education Foundation (NEEF)**
 - ***AMS Station Scientist Program***
 - Link WCM's and Broadcast Meteorologists
 - Convert Meteorologist into Station Scientist
 - ***Education Resource Web Site for Educators***
 - Provide NWS products and services



AMS Station Scientist Program

High-Impact Services

- **Natural hazards**
 - *Tornadoes*
 - *Hurricanes*
 - *Floods*
 - *Droughts*
 - *Volcanic eruptions*
 - *Tsunamis*
- **Manmade**
 - *Industrial and Transportation*
 - Chemical releases
 - Oil spills
 - Nuclear power plant emergencies
- **Terrorism**



Partnerships

- **National Geographic Society**
 - *Monster Storms Project*
 - NOAA Scientists as student mentors
- **American Geological Institute (AGI)**
 - *Support to Earth Science Week*
 - Teacher Information Package
 - 16,000 copies of each item
 - Fall activity



Activities

- **Web Site Visits**
 - *JetStream Activities*
 - *Clouds and Cotton Balls*
- **Xtreme Weather Demo**
- **NWS Education Web Sites**

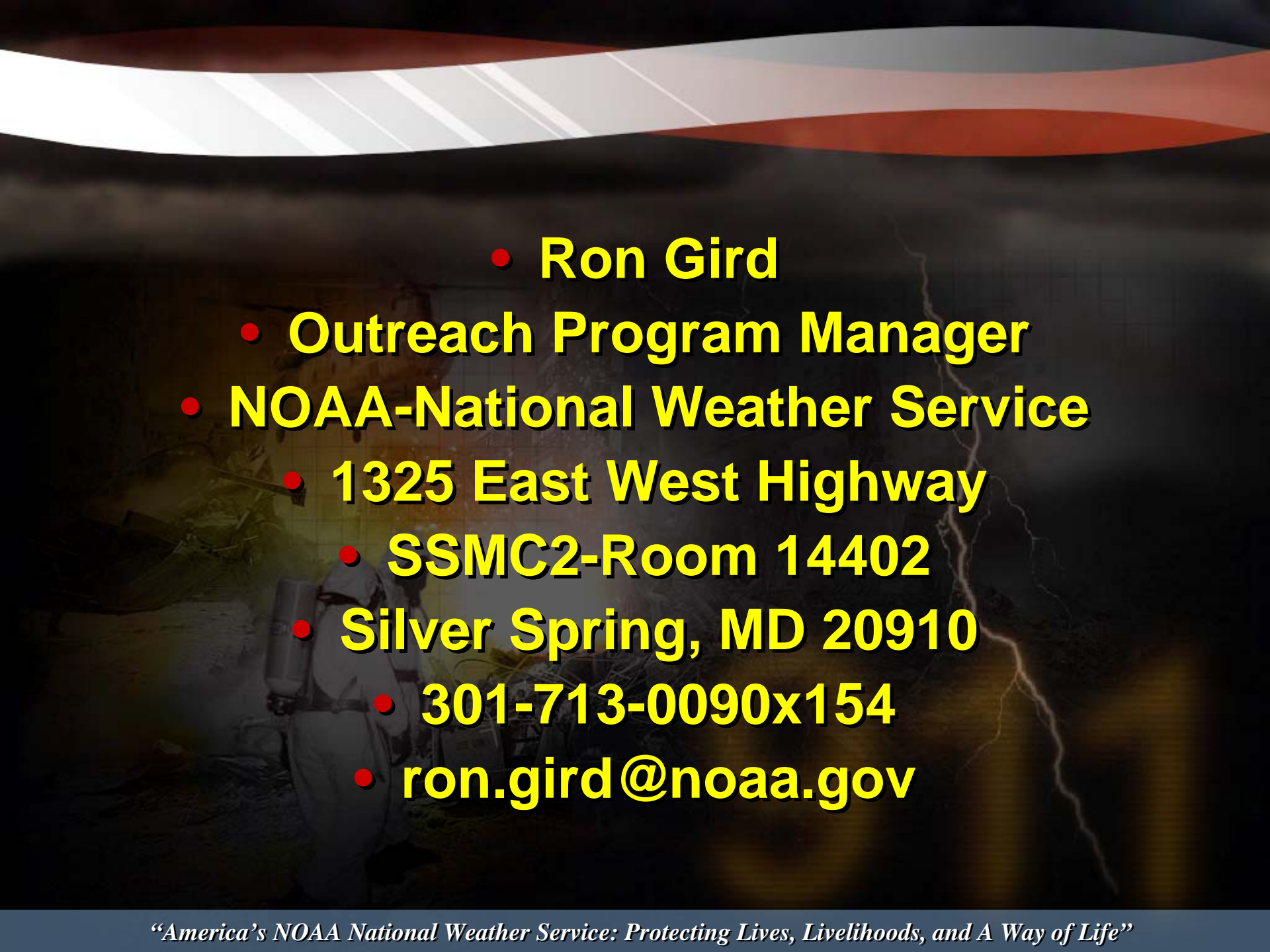
Challenges

- **Expand school visit program**
 - *Weather-Water-Climate*
- **Promote/Expand “Science Center” partnerships**
- **Develop long-term education partnerships**

????????????Questions????????????



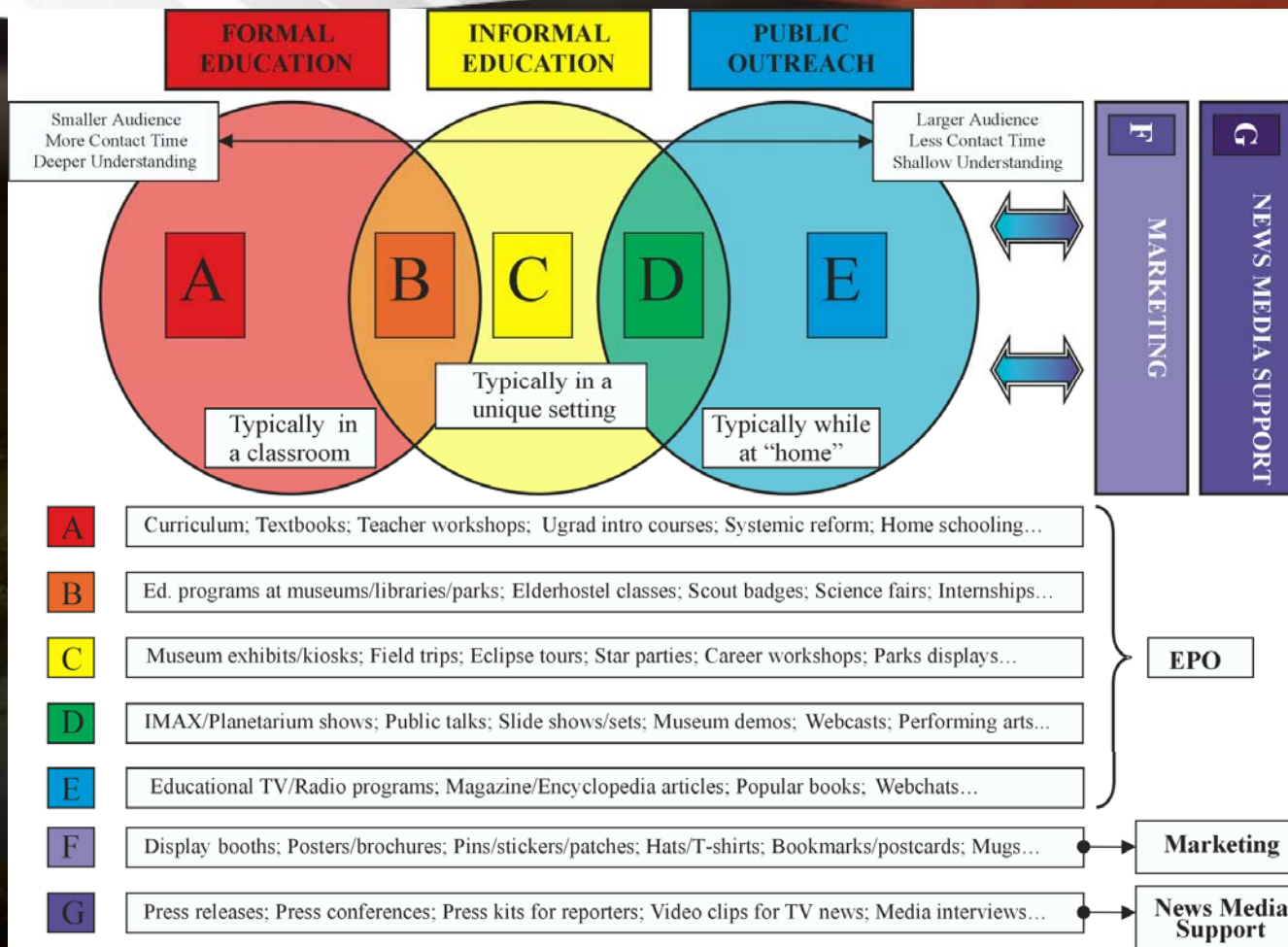
“America’s NOAA National Weather Service: Protecting Lives, Livelihoods, and A Way of Life”

- 
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 - **SSMC2-Room 14402**
 - **Silver Spring, MD 20910**
 - **301-713-0090x154**
 - **ron.gird@noaa.gov**



Supplemental Slides

A Conceptual Framework for EPO Planning



This 3-circle Venn diagram offers a conceptual framework to distinguish among the realms known as Formal Science Education, Informal Science Education, Public Outreach, Marketing, and News Media Support.

Cherilynn Morrow, Space Science Institute, May, 2000. Email camorrow@colorado.edu.

New NOAA Education Authorization

- NOAA has a mandate to educate!
- America COMPETES Act provides broad education authority for NOAA!
- “The Administrator of NOAA shall conduct, develop, support, promote, and coordinate formal and informal education activities at all levels to enhance public awareness and understanding of ocean, coastal, Great Lakes, and **atmospheric science** and stewardship by the general public and other coastal stakeholders, including underrepresented groups in ocean and atmospheric science and policy careers. In conducting those activities, the Administrator shall build upon the educational programs and activities of the agency.”

NOAA Definitions for Education

- Formal Education: Learning that takes place within a structured educational system in which children or adults are required to demonstrate proficiency, i.e., tested and graded, in the process of reaching a certain level of achievement, degree, certification, continuing education credits, etc.
- Informal Education: Learning outside the established formal system that meets clearly defined objectives through organized educational activities. This mode of education may be voluntary, self-directed (e.g., a museum or aquarium exhibit), or systematic and guided (e.g., a field trip).
- Outreach: Opportunities designed to build awareness, develop relationships, and inspire action (e.g., pursuit of further learning opportunities, behavioral change). Involves information exchange between provider and target audience. Frequently designed to reach diverse audiences, but can be personal and interactive, designed to identify and appeal to an individual's personal interest or motivation for information.



The End

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