



The Weather and Climate Enterprise in the United States

**April 2, 2012
Seoul, South Korea**

**Raymond Ban
Consultant, Weather Industry and Government Partnerships, The Weather Channel,
LLC.**

WEATHER CONNECTS US.





US Weather/Climate Enterprise

The unique, synergistically inter-dependent relationship between government, industry and academia that provides weather/climate information and services in the United States

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US Weather/Climate Enterprise



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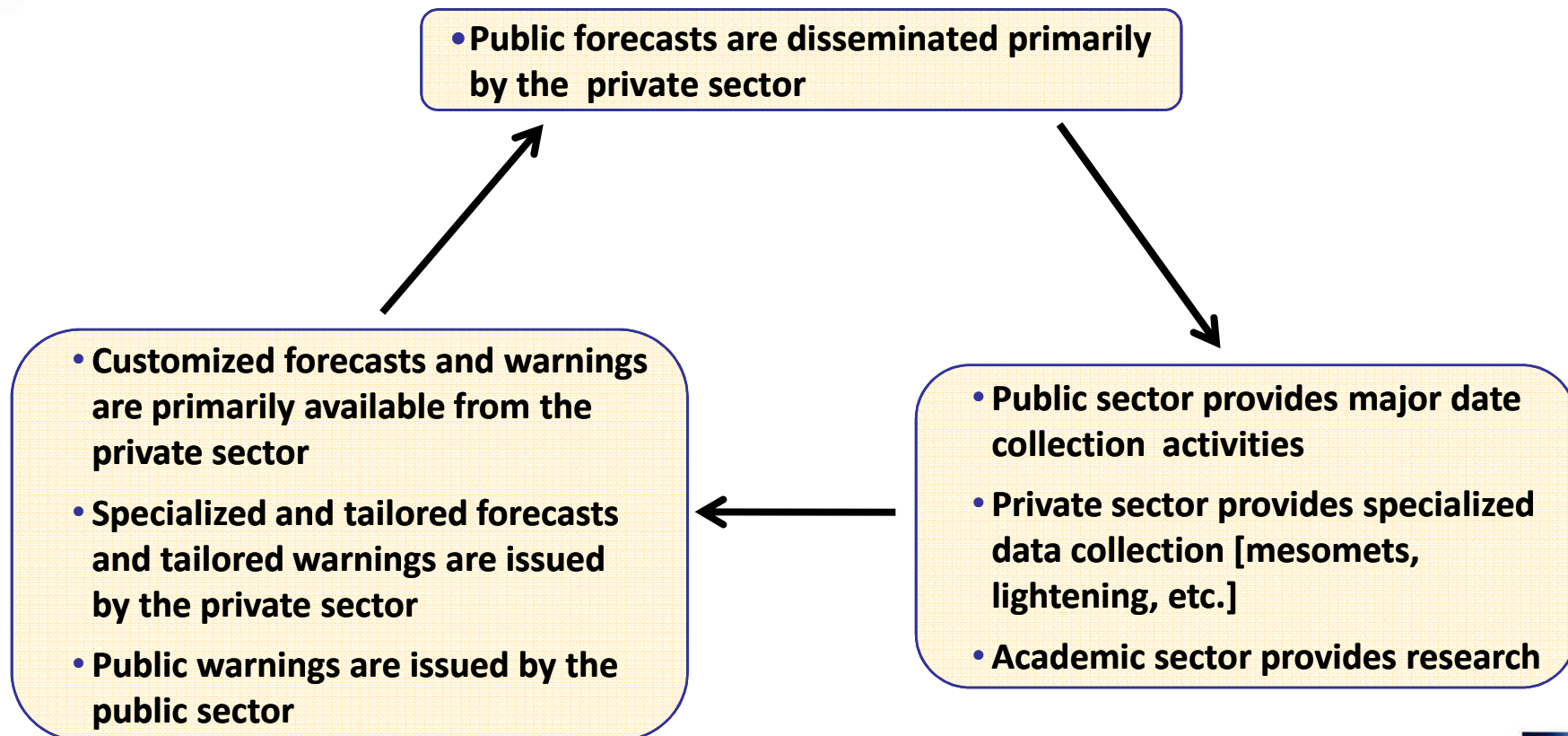
US Weather/Climate Enterprise

- Government
 - Data Collection/processing
 - Numerical Weather Prediction
 - Severe weather watches/warnings
- Commercial
 - Customization/tailoring
 - Communication
- Universities
 - Education
 - Research

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Interdependence





US Weather Industry

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USERS OF WEATHER AND CLIMATE INFORMATION

- Agriculture
- Forestry
- Transportation
- Energy
- Public Health
- Insurance and Reinsurance
- Emergency Preparedness and Response

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USERS OF WEATHER AND CLIMATE INFORMATION (continued)

- Construction
- Aviation
- Recreation
- Legal
- Fisheries
- Communications
- Media

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Corporate Meteorologists



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Airline Industry



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Energy



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UV Index



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National Lightning Detection Network



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Broadcast Meteorologist

The screenshot shows the MetEd website with a navigation bar including HOME, TOPICS, COMMUNITIES, COURSES, CASES, RESOURCES, and ABOUT MetEd. The main content area features a large lens graphic with the text "Welcome, Broadcast Meteorologists!". To the left is a sidebar with links for Broadcast Met Home, Professional Development, Featured Training Materials, Station Scientist Role, Earth Gauge, Demo Clips, Story Ideas & Factoids, Website Resources, Comment Line, and COMET Resources. To the right, there's a section titled "Broadcast Met Community Website" with a list of resources and a "Beyond the Forecast" section. The footer includes the text "WEATHER CONNECTS US." and the Weather Channel logo.

MetEd
Meteorology Education & Training

Account Login | Search:

HOME TOPICS COMMUNITIES COURSES CASES RESOURCES ABOUT MetEd

communities: broadcast meteorologists

Broadcast Met Home

- Professional Development
- Featured Training Materials
- Station Scientist Role
- Earth Gauge
- Demo Clips
- Story Ideas & Factoids
- Website Resources
- Comment Line

COMET Resources

- [MetEd Login](#)
- [Modules and Webcasts](#)
- [Multimedia Database](#)
- [WCM Materials](#)
- [Case Study Library](#)
- [Northwest Case Studies](#)
- [Case Study Library](#)
- [ACW Webinars](#)
- [Weather and Climate](#)
- [Weather and Climate](#)
- [Weather and Climate](#)

Broadcast Met Community Website

Your source for:

- [Professional development tools](#),
- [certification info](#), [training materials](#),
- [story ideas & factoids](#), [demo clips](#),
- [visual resources](#), and more!

Welcome, Broadcast Meteorologists!

Professional Development

The COMET Program has been providing high-quality training and education materials to meteorology professionals. The COMET Program has been providing high-quality training and education materials to meteorology professionals.

Beyond the Forecast: Reporting on Science and the Environment

Weathercasters and broadcast meteorologists have a unique opportunity to raise public awareness of critical health, environment, and science issues.

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The Weather Channel
weather.com

What is The Weather Channel?



The Weather Channel



Mobile



Weatherscan



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Radio



Desktop



Newspapers



Subscription Products

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HUGE CROSS PLATFORM REACH

109M+
CABLE TV

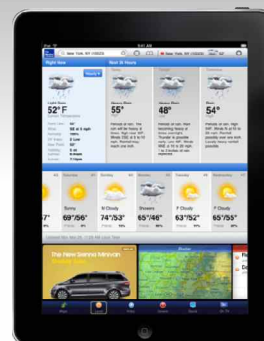


42M+
weather.com



45M+
MOBILE WEB &
MOBILE APPS

The weather channel has one of the **LARGEST** mobile audiences in the world (just after Google, Yahoo, and Facebook). *

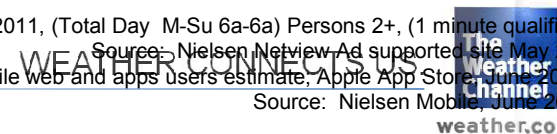


4M+
IPAD APP
DOWNLOADS

Source: Nielsen's NPower , Cume Analysis, May 2011, (Total Day M-Su 6a-6a) Persons 2+, (1 minute qualifier).

Source: Nielsen Netview Ad supported site May 2011
Source: Nielsen Mobile May 2011 with TWC Internal mobile web and apps users estimate, Apple App Store, June 2011.

Source: Nielsen Mobile, June 2011

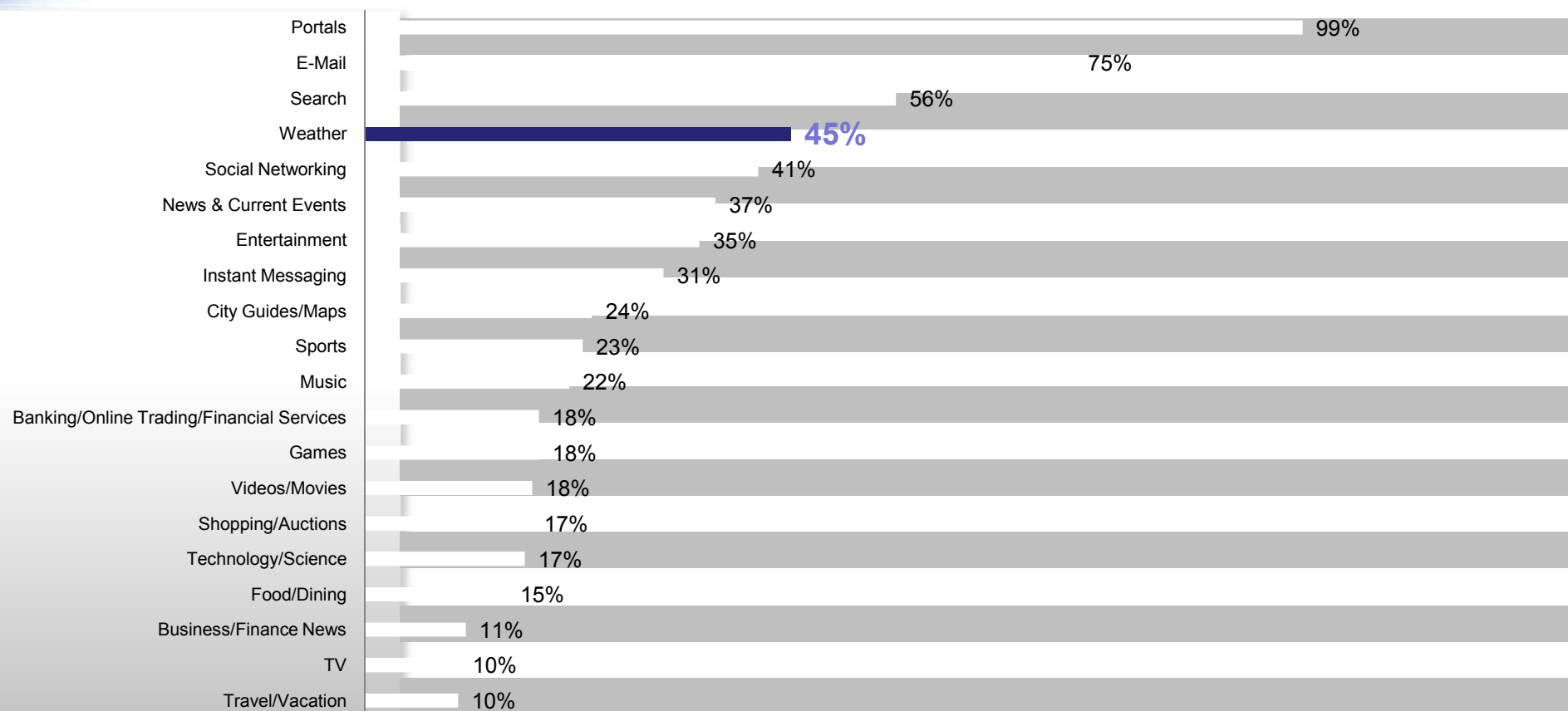


WEATHER IS THE MOST POPULAR MOBILE CONTENT CATEGORY!

Top 20 Mobile Web Categories

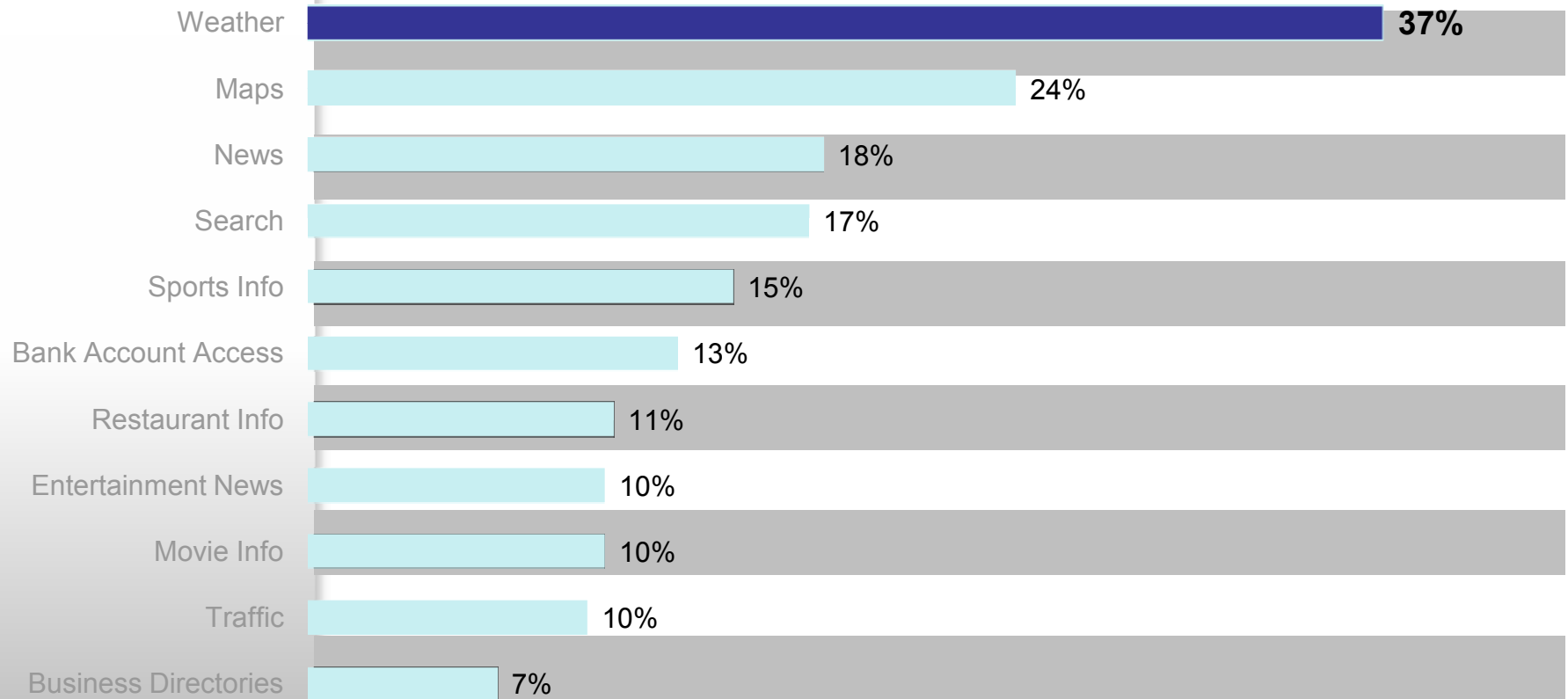
April 2011

CATEGORY!



WEATHER IS THE #1 APP CATEGORY

Top Mobile App Genres



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THE WEATHER CHANNEL HAS THE 5TH LARGEST MOBILE AUDIENCE IN THE WORLD

Unique Mobile Web Users in millions

55.3

42.0

40.5

36.9

26.9

18.0

17.8

16.2

Google
Search

Facebook

Gmail

Yahoo! Mail

Weather
Channel

MSN
Hotmail

Google
Maps

ESPN

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US Weather Industry

Commercial Weather Companies (~250)	\$ 2000 M
Local TV meteorologist (210 TV markets)	\$ 450 M
Individual Consultants (300)	\$ 50 M
Meteorologist employed (by the insurance, transportation, energy, investment companies)	\$ 100 M
National media (Weather Channel, CNN, NBC)	\$ 500 M
Major equipment suppliers (satellite, radar, monitoring)	\$ 2000 M
<i>Private Sector Estimate</i>	\$ 5100 M

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NEWS

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washingtonpost.com > Arts & Living > Style

Weather Channel Sold to NBCU

\$3.5 Billion Paid For Cable Outlet

By [Frank Ahrens](#)

Washington Post Staff Writer

Monday, July 7, 2008; Page C07

[NBC Universal](#) and two private-equity funds have purchased the [Weather Channel](#), the companies said yesterday.

NBCU, owned by [General Electric](#), partnered with [Bain Capital](#) and the [Blackstone Group](#) to pay about \$3.5 billion for the cable channel and its associated properties from Landmark Communications, the Norfolk-based media company that launched the



Meteorologist Vivian Brown broadcasts from Weather Channel studios in Atlanta. Landmark Communications Inc. has sold the channel to NBC Universal and two private-equity funds. (By Chris Rank -- Bloomberg News)

TOOL BOX

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GOVERNMENT SECTOR

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OBSERVATIONS AND DATA



National Weather Service Forecast Office, La Crosse, WI

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NUMERICAL WEATHER PREDICTION



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SPACE WEATHER



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Protecting Lives & Property

More Inside



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Severe Weather Warnings



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Flood Warnings



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National Weather Service National Hurricane Center



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[News](#)
[Organization](#)

Local forecast by
"City, St" or "ZIP"

Top News of the Day.....view past news Last update Fri, 25 Jul 2008 21:52:42 UTC

- **NHC issuing advisories on Hurricane GENEVIEVE**
- **Last NHC advisory issued on DOLLY**
- High resolution satellite imagery of Hurricane Dolly has been posted
- Access hurricane advisories on your mobile phone: www.nhc.noaa.gov/mobile....(learn more)

Alternate versions
Text-only | PDA | Cell

Get Storm Info
Satellite | Radar
Aircraft Recon
Advisory Archive
Experimental
Mobile Products
E-mail Advisories
Audio/Podcasts
GIS Data | RSS
Help with Advisories

Marine Forecasts
Atlantic and E Pacific
Forecast and
Analysis Tools
Help with Marine

Hurricane Awareness
Be Prepared | Learn
Frequent Questions
AOML Research
Hurricane Hunters
Saffir-Simpson Scale
Forecasting Models
Eyewall Wind Profiles
Glossary/Acronyms
Storm Names
Breakpoints

Hurricane History
Seasonal Review

Eastern Pacific
Atlantic

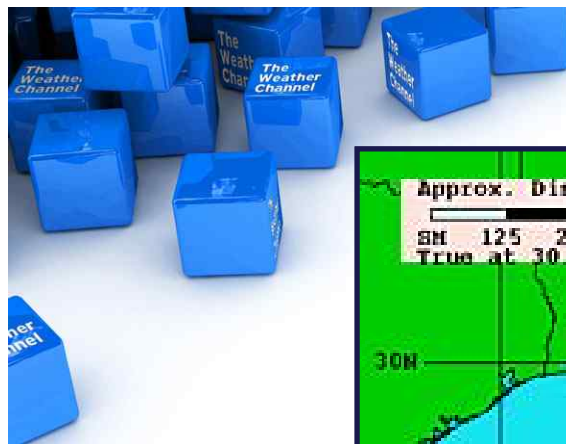


07/25/08 20:58 UTC

48-hour formation potential: ■ Low <20% ■ Medium 20-50% ■ High >50%

[Graphical Tropical Weather Outlook](#)
[Active Storms](#)
[Marine Forecasts](#)

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Public Forecasts are available on the Web



Your National Weather Service forecast

Nederland CO

Enter Your "City, ST" or zip code

NWS Denver-Boulder, CO
Point Forecast: Nederland CO
39.96N-105.5W (Elev. 8197 ft)

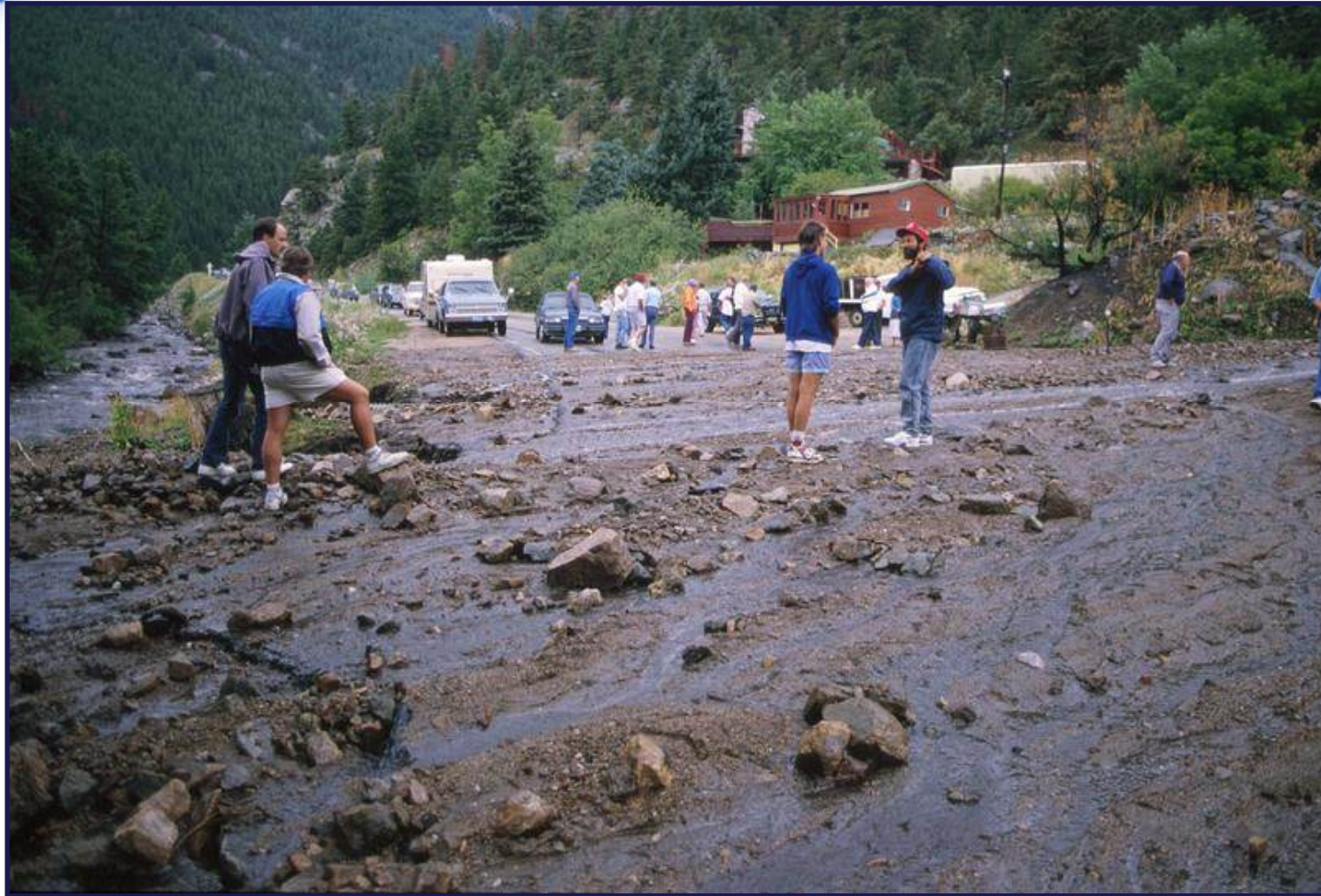
Last Update: 3:56 pm MDT Jul 25, 2008
Forecast Valid: 4pm MDT Jul 25, 2008-6pm MDT Aug 1, 2008

Forecast at a Glance

Late Afternoon	Tonight	Saturday	Saturday Night	Sunday	Sunday Night	Monday	Monday Night	Tuesday
 50%	 50%	 30%	 30%	 20%	 20%	 50%	 50%	 50%
Chance Tstms	Chance Tstms	Chance Tstms	Chance Tstms	Slight Chc Tstms	Slight Chc Tstms	Chance Tstms	Chance Tstms	Chance Tstms
Hi 82°F	Lo 53°F	Hi 80°F	Lo 52°F	Hi 83°F	Lo 51°F	Hi 78°F	Lo 51°F	Hi 81°F

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Flash Flood Forecasts



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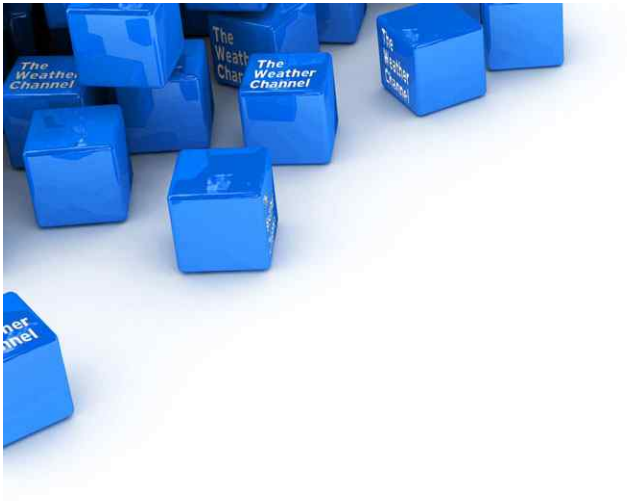
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Government Sector

National Weather Service	\$ 910 M
National Environmental Data Information Service (NESDIS)	\$ 170 M
Air Force	\$ 80 M
Navy	\$ 60 M
NOAA [Research (OAR)]	\$ 240 M
GOES-R	\$ 480 M
NPOESS	\$ 290 M
National Science Foundation	\$ 500 M
Other Agencies	\$ 100 M
<i>Estimated Public Sector</i>	\$ 2,830 M

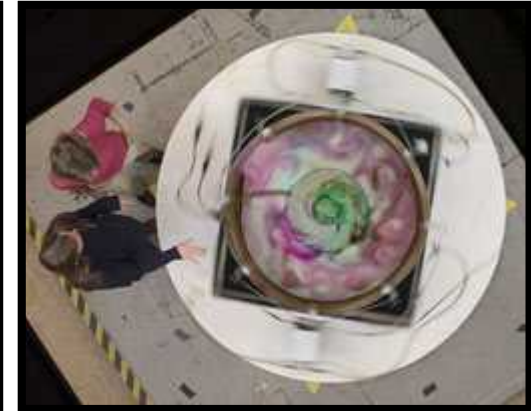
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ACADEMIC SECTOR

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Wide Variety of Research



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Research Radar



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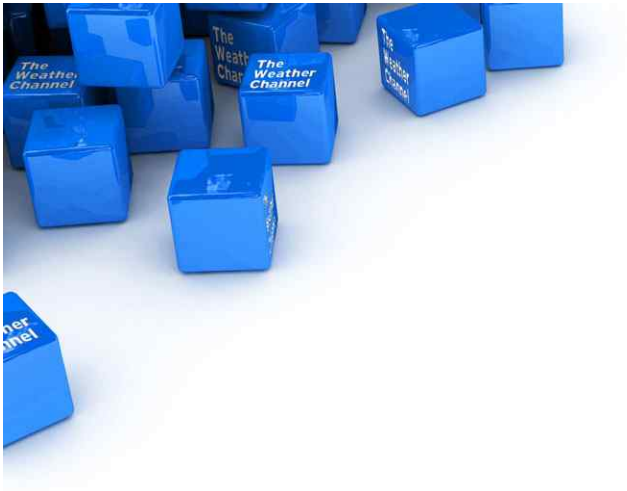
“Hiaper” High Altitude Research Aircraft At NCAR



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Academic Sector

Universities which offer at least one degree in the atmospheric or related sciences	100
Estimated Total Faculty	1200
<i>Estimated Annual Budget</i>	\$ 300 M



Grand Total

The U.S. Weather Enterprise [Annual Revenue or Appropriated Funds]

Private sector	\$ 5,100 M
Government sector	\$ 2,800 M
Academic sector	\$ 300 M
<i>Total</i>	\$ 8,200 M

Annual revenue or appropriated funds



Why is the Enterprise successful?

Open Data Policy

- US law requires the Public Weather service to make its data, forecasts, and standard products freely available to all. (minus modest cost of transmission)

Why is the Enterprise successful?

Entrepreneurs Can Flourish



[About](#) [Support](#) [Contact](#) [Site Map](#)

Extreme
weather coverage from the
world's largest weather network.

[Television](#) [Radio](#) [Print](#)

The WeatherBug program provides media companies a competitive edge by plugging them into the power of the world's largest, real-time weather network.

- WeatherBug Network
- Homeland Security
- Revenue Opportunities

Provided by AWS, Inc. using 5000 automated weather cities – funded by advertising and monthly subscription

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Why is the Enterprise successful?

Cooperation

- The airline industry was burning excess fuel because of poor winds aloft forecasts
- The government sector said: “give us better data on winds aloft and we can improve forecasts”
- Airline industry created ACARS: data measurement systems carried on every commercial airliner, relaying winds to the national center
- Winds aloft forecasts improved
- Airlines save billions of dollars on fuel

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Why is the Enterprise successful?

Interdependence

- Public weather service cannot:
 - Communicate with 300M Americans without the private sector
 - Provide specific weather services in a \$10 trillion economy
 - Support the vast media industry in the U.S.

- Private sector weather services cannot:
 - Provide national and international data collection system
 - Provide global models
 - Assume liability for public warnings

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Why is the Enterprise successful?

Tailored Products Are Critical To The Economy

The screenshot shows the AccuWeather.com website. At the top, it says "Mobile | iPhone" and "AccuWeather.com® World's Weather Authority™". There are links for "LOGIN: Premium | Professional | RadarPlus". Below this is a navigation bar with "Local Weather Forecast" and a search box for "Zip Code or City, State" with a "GO" button. Other links include "Airport Search", "World Weather", "Canada", "UK & Ireland", "Site Search", and "Enter Search Phrase". A "FEATURED AREA: HURRICANE CENTER" is highlighted. The main content area is divided into several sections: "Weather News" with a "Headlines" tab and a list of articles; "Services For You" with a "Weather enthusiasts' one source of professional meteorological data" section; "My Weather Locations" with "View Favorites" and "Change Locations" buttons; "Latest National News" with a "Weekend Threat from Dolly" article and a map; "Regional News" with links for "World", "East", "South", "West", "Southwest", and "Midwest"; "National Weather Maps" with tabs for "Radar", "Satellite", "Advisories", "Travel", "Temperature", and "Tropics"; and "Weather Videos" with a "Breaking Weather" video player. The website is funded by advertising, as evidenced by the Microsoft Dynamics CRM Online advertisement.

The largest private weather service in the U.S. provides forecasts, products, and services with contractual arrangements and a public website funded by advertising.

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Tensions in the Enterprise

Public weather service:

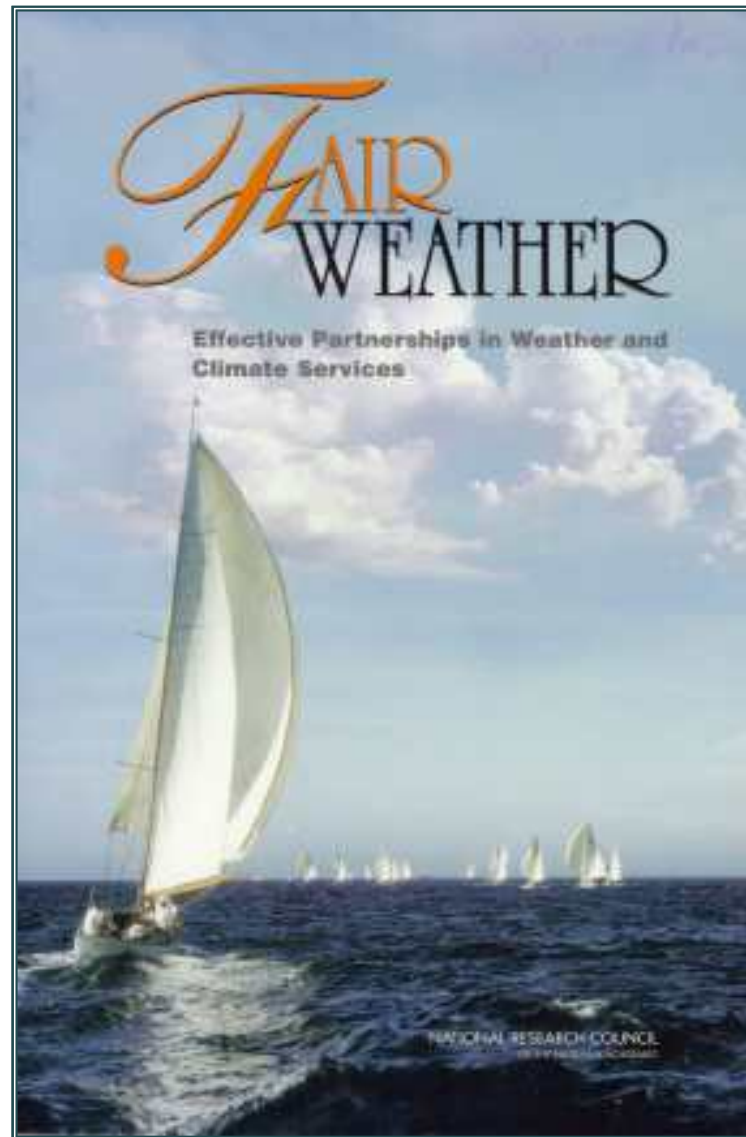
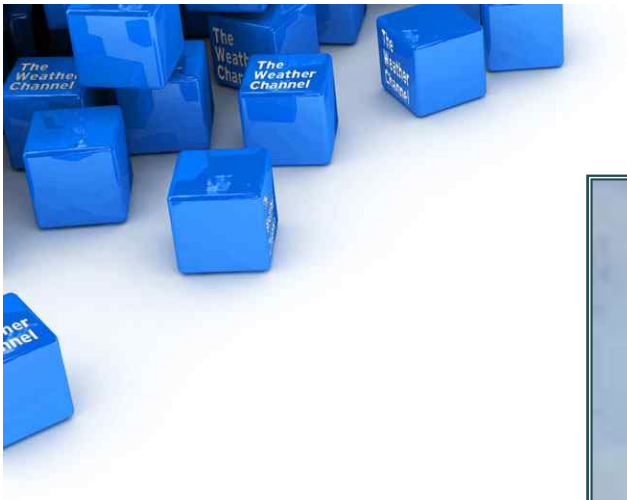
- Does not always provide quality data on a timely basis
- Duplicates or adopts services and products developed and provided by the private sector

Academic sector:

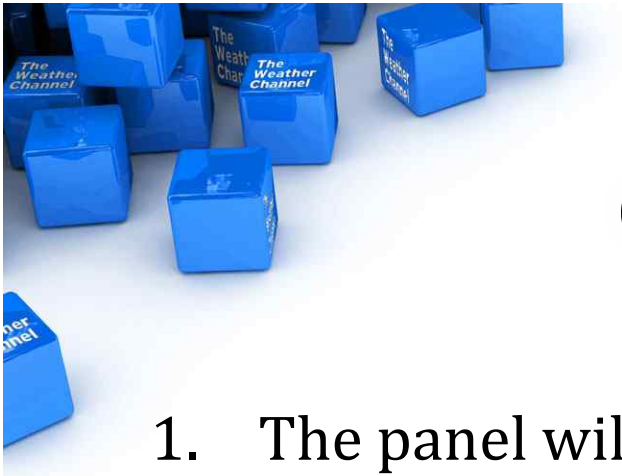
- Provides some products and services available from the private sector

Private services:

- Do not consistently credit the public weather service for data and products
- Can issue contradictory forecasts which can confuse the public



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Committee Charge

1. The panel will examine the present roles of the public sector, the private sector, and the academic community.
2. The panel will identify the effects that advances in observing, modeling, forecasting, and information dissemination technologies have on the sector roles.
3. The panel will examine the interface between the various sectors.
4. The panel will make recommendations regarding how most effectively to coordinate the roles.



Fair Weather – Effective Partnerships in Weather and Climate Service

National Research Council
2003

Therefore, the committee's primary conclusion is that *it is counterproductive and diversionary to establish detailed and rigid boundaries for each sector outlining who can do what and with which tools.*



FAIR WEATHER – Recommendation 1

“The National Weather Service, (NWS) should replace its 1991 public-private partnership policy with a policy that defines processes for making decisions on products, technologies, and services, rather than rigidly defining the roles of the NWS and the private sector.



FAIR WEATHER – Recommendation 2

The NWS should establish an independent advisory committee to provide ongoing advice to it on weather and climate matters. The committee should be composed of users of weather and climate data and representatives of the public, private, and academic sectors, and it should consider issues relevant to each sector as well as to the set of players as a group, such as (but not limited to)



FAIR WEATHER – Recommendation 3

The NWS and relevant academic, state, and private organizations should seek a neutral host, such as the American Meteorological Society, to provide a periodic dedicated venue for the weather enterprise as a whole to discuss issues related to the public-private partnership.



2004 NOAA POLICY ON PARTNERSHIPS IN THE PROVISION OF ENVIRONMENTAL INFORMATION

4. NOAA recognizes the public interest is served by the ability of private sector entities and the academic and research community to provide diverse services to meet the varied needs of specific individuals, organizations, and economic entities. The nation benefits from government information disseminated both by Federal agencies and by diverse nonfederal parties, including commercial and not-for-profit entities.



2004 NOAA POLICY ON PARTNERSHIPS IN THE PROVISION OF ENVIRONMENTAL INFORMATION

4. (cont.)

NOAA will give due consideration to these abilities, and consider the effects of its decisions on the activities of these entities, in accordance with its responsibilities as an agency of the U.S. Government, to serve the public interest and advance the nation's environmental information enterprise as a whole.



2004 NOAA POLICY ON PARTNERSHIPS IN THE PROVISION OF ENVIRONMENTAL INFORMATION

5. NOAA will use appropriate mechanisms to encourage the maximum practicable and timely input from and collaboration with interested persons and entities on decisions affecting the environmental information enterprise...



BAN'S OPERATING THEME

All reasonable and lawful coordination and planning efforts will take place to grow the Weather and Climate Enterprise by optimizing the skills, competencies and assets that reside across the entire Enterprise in order to provide the highest quality service and greatest value to the nation.

FULL ENGAGEMENT BY ALL ENTERPRISE SEGMENTS

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References

- Fair Weather: Effective Partnerships in Weather and Climate Services. National Research Council, National Academies Press (www.nap.edu)
- The Private Sector in Meteorology – an Update: David B. Spiegler, 2007 (www.ametsoc.org/boardpages/cwce)



THANK YOU

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