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.
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.
US Weather/Climate Enterprise

The National Weather and Climate Enterprise

Commercial Weather Services

User Community

Universities

Government Weather Services

WEATHER CONNECTS US.
US Weather/Climate Enterprise

• Government
  – Data Collection/processing
  – Numerical Weather Prediction
  – Severe weather watches/warnings

• Commercial
  – Customization/tailoring
  – Communication

• Universities
  – Education
  – Research
Interdependence

• Public forecasts are disseminated primarily by the private sector

• Customized forecasts and warnings are primarily available from the private sector
• Specialized and tailored forecasts and tailored warnings are issued by the private sector
• Public warnings are issued by the public sector

• Public sector provides major data collection activities
• Private sector provides specialized data collection [mesometers, lightning, etc.]
• Academic sector provides research
USERS OF WEATHER AND CLIMATE INFORMATION

• Agriculture
• Forestry
• Transportation
• Energy
• Public Health
• Insurance and Reinsurance
• Emergency Preparedness and Response
USERS OF WEATHER AND CLIMATE INFORMATION (continued)

• Construction
• Aviation
• Recreation
• Legal
• Fisheries
• Communications
• Media
Corporate Meteorologists
Airline Industry
Energy
UV Index
National Lightning Detection Network
Broadcast Meteorologist
What is The Weather Channel?

WEATHER CONNECTS US.
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 Channel, June 2011.
WEATHER IS THE MOST POPULAR MOBILE CONTENT CATEGORY!

Top 20 Mobile Web Categories

April 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portals</td>
<td>99%</td>
</tr>
<tr>
<td>E-Mail</td>
<td>75%</td>
</tr>
<tr>
<td>Search</td>
<td>56%</td>
</tr>
<tr>
<td>News &amp; Current Events</td>
<td>45%</td>
</tr>
<tr>
<td>Social Networking</td>
<td>41%</td>
</tr>
<tr>
<td>Search</td>
<td>37%</td>
</tr>
<tr>
<td>Weather</td>
<td>35%</td>
</tr>
<tr>
<td>Entertainment</td>
<td>35%</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>31%</td>
</tr>
<tr>
<td>City Guides/Maps</td>
<td>24%</td>
</tr>
<tr>
<td>Sports</td>
<td>23%</td>
</tr>
<tr>
<td>Music</td>
<td>22%</td>
</tr>
<tr>
<td>Banking/Online Trading/Financial Services</td>
<td>18%</td>
</tr>
<tr>
<td>Games</td>
<td>18%</td>
</tr>
<tr>
<td>Videos/Movies</td>
<td>18%</td>
</tr>
<tr>
<td>Shopping/Auctions</td>
<td>17%</td>
</tr>
<tr>
<td>Technology/Science</td>
<td>17%</td>
</tr>
<tr>
<td>Food/Dining</td>
<td>15%</td>
</tr>
<tr>
<td>Business/Finance News</td>
<td>11%</td>
</tr>
<tr>
<td>TV</td>
<td>10%</td>
</tr>
<tr>
<td>Travel/Vacation</td>
<td>10%</td>
</tr>
</tbody>
</table>

WEATHER CONNECTS US.
WEATHER IS THE #1 APP CATEGORY

Top Mobile App Genres

- Weather: 37%
- Maps: 24%
- News: 18%
- Search: 17%
- Sports Info: 15%
- Bank Account Access: 13%
- Restaurant Info: 11%
- Entertainment News: 10%
- Movie Info: 10%
- Traffic: 10%
- Business Directories: 7%

WEATHER CONNECTS US.
THE WEATHER CHANNEL HAS THE 5TH LARGEST MOBILE AUDIENCE IN THE WORLD

Unique Mobile Web Users in millions

Google Search: 55.3
Facebook: 42.0
Gmail: 40.5
Yahoo! Mail: 36.9
Weather Channel: 26.9
MSN Hotmail: 18.0
Google Maps: 17.8
ESPN: 16.2

Source: Nielsen Mobile, April 2011.
# US Weather Industry

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Weather Companies (~250)</td>
<td>$ 2000 M</td>
</tr>
<tr>
<td>Local TV meteorologist (210 TV markets)</td>
<td>$ 450 M</td>
</tr>
<tr>
<td>Individual Consultants (300)</td>
<td>$ 50 M</td>
</tr>
<tr>
<td>Meteorologist employed (by the insurance, transportation, energy, investment companies)</td>
<td>$ 100 M</td>
</tr>
<tr>
<td>National media (Weather Channel, CNN, NBC)</td>
<td>$ 500 M</td>
</tr>
<tr>
<td>Major equipment suppliers (satellite, radar, monitoring)</td>
<td>$ 2000 M</td>
</tr>
<tr>
<td><strong>Private Sector Estimate</strong></td>
<td><strong>$ 5100 M</strong></td>
</tr>
</tbody>
</table>
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 channel in 1982.

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)
GOVERNMENT SECTOR
NUMERICAL WEATHER PREDICTION

WEATHER CONNECTS US.
SPACE WEATHER

WEATHER CONNECTS US.
Protecting Lives & Property
Severe Weather Warnings
Flood Warnings
WEATHER CONNECTS US.
Public Forecasts are available on the Web
Flash Flood Forecasts
## Government Sector

<table>
<thead>
<tr>
<th>Agency</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Weather Service</td>
<td>$ 910 M</td>
</tr>
<tr>
<td>National Environmental Data Information Service (NESDIS)</td>
<td>$ 170 M</td>
</tr>
<tr>
<td>Air Force</td>
<td>$ 80 M</td>
</tr>
<tr>
<td>Navy</td>
<td>$ 60 M</td>
</tr>
<tr>
<td>NOAA [Research (OAR)]</td>
<td>$ 240 M</td>
</tr>
<tr>
<td>GOES-R</td>
<td>$ 480 M</td>
</tr>
<tr>
<td>NPOESS</td>
<td>$ 290 M</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>$ 500 M</td>
</tr>
<tr>
<td>Other Agencies</td>
<td>$ 100 M</td>
</tr>
<tr>
<td><strong>Estimated Public Sector</strong></td>
<td>$ 2,830 M</td>
</tr>
</tbody>
</table>
ACADEMIC SECTOR
Wide Variety of Research

WEATHER CONNECTS US.
Research Radar
“Hiaper” High Altitude Research Aircraft At NCAR
## Academic Sector

<table>
<thead>
<tr>
<th>Universities which offer at least one degree in the atmospheric or related sciences</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Total Faculty</td>
<td>1200</td>
</tr>
<tr>
<td><em>Estimated Annual Budget</em></td>
<td>$ 300 M</td>
</tr>
</tbody>
</table>
The U.S. Weather Enterprise
[Annual Revenue or Appropriated Funds]

<table>
<thead>
<tr>
<th>Sector</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private sector</td>
<td>$ 5,100 M</td>
</tr>
<tr>
<td>Government sector</td>
<td>$ 2,800 M</td>
</tr>
<tr>
<td>Academic sector</td>
<td>$ 300 M</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 8,200 M</strong></td>
</tr>
</tbody>
</table>
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

Provided by AWS, Inc. using 5000 automated weather cities – funded by advertising and monthly subscription
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
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
Why is the Enterprise successful?

Tailored Products Are Critical To The Economy

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

WEATHER CONNECTS US.
WEATHER CONNECTS US.
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.
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.
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.
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.
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
References


- The Private Sector in Meteorology – an Update: David B. Spiegler, 2007 (www.ametsoc.org/boardpages/cwce)