Opportunities for ITS Applications in NOAA

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Current Efforts

- Roads
  - RWIS
- Rails
  - Observation Stations
Current Efforts

- Marine
  - Volunteer Observing Ships
  - AMVER Seas
  - Automated Identification System
  - PORTS / Harbornet
Current Efforts

- Air
  - Webcams
  - ACARS/TAMDAR
  - Unmanned Aerial Vehicles
  - Automatic Dependent Surveillance – Broadcast
National Climate Service - Plans

- Establish, within NOAA, of a National Climate Service:
  - The nation's identified, accessible, official source of authoritative, regular, and timely climate information
  - This includes historical and real-time data, monitoring and assessments, research and modeling, predictions and projections, decision support tools and early warning systems, and the development and delivery of valued climate services
Opportunities – Climate Service

- **Long-Term:**
  - Precipitation Frequency Estimates
  - Water (Sea) Level Stations
- **Short-Term**
  - Seasonal Climate Forecasts
  - Storm Track Climatologies
  - New Forecast Zones
Opportunities – Climate Service

Questions:

- What information do users need from a Climate Service?
- What questions do transportation planners have?

Alaskan Examples:

- River transportation season – freeze-up / break-up
Climate Service Partnership - Plans

- Crosses federal agencies and is inclusive of other sectors:
  - Ensures that highly usable, actionable, issue-focused information is produced and evaluated
  - Leverages the distributed set of resources throughout the nation (including universities, federal, state and local science and management agencies, and non-governmental organizations)
  - Facilitates collaboration across the nation’s climate information resources
Opportunities – Climate Service Partnership

Questions:
- What is the role of the ITS Community in a National Climate Services Partnership?
National Climate Service - Status

- Convene teams to develop a report derived from extended community assessment of the four options proposed at the external review
  - Create a national climate service federation that would determine how to deliver climate services to the nation
  - Create a non-profit corporation with federal sponsorship
  - Create a national climate service with NOAA as the lead agency with specifically defined partners
  - Expand and improve weather services into weather and climate services within NOAA
Regional Collaboration
NOAA Regional Collaboration

- Regional Collaboration
  http://www.ppi.noaa.gov/PPI_Capabilities/regional_collaboration.html

- Regional Team Membership
Thank You!

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Aviation Safety

• Decision
  • When do pilots need to worry about icing?
  • Do airstrips need to be relocated / reoriented?
  • What will the climate change effects be on dirt runways?
Aviation Safety

Climate Information Involved:
- Projections and Forecasts
  - Effects of climate change on the short term forecast
- Observations and Data
  - Permafrost
  - Precipitation / Break-up
  - Air temperature and moisture
  - Web cameras
Challenges

- Importance of Operational Systems
- Data availability
  - Access
  - Density
  - Upstream
- Reliable Forecast Models
Weather Forecasts & Warnings

- Decision:
  - What forecasts and warnings will customers need in 2020?
Future Efforts

- **Distributed Collaborative Adaptive Sensing (DCAS) networks.** Scaled down, phased-array radars operate collaboratively within a dynamic information technology infrastructure, adapting to changing atmospheric conditions in a manner that meets competing end user needs.

- DCAS benefits society by saving lives and property, and reducing vulnerability through improved understanding, detection, prediction, warning, and response to hazardous atmospheric events.
Future Efforts

- **Coastal HF Radar**—provide coastal-ocean surface current, wave, and sea ice information offshore out to as far as 300 km.
Future Efforts

- **LIDAR** - Uses echoes from the sky to measure temperatures at different heights, similar to what a weather balloon does, but at much greater elevations (25 to 50 miles).
- Understand the structure of the stratospheric vortex, and possible connections between weather in the stratosphere and at the ground and establish a benchmark of measurements for assessing long-term changes.