Drivers & Products

Time Frame	Driver	Product
8 days- 2 weeks	• weather forecasters • Emergency management • Fishing fleet • Fuel resupply/ Public safety / Aviation	• guidance for forecast • increased chance of storminess • ice edge; freezing spray • advance notice of prolonged cold/warm
3-4 weeks	• River Forecast Center • Oil & Gas Regulators	• river ice breakup guidance • sea ice break-up/freeze-up
1-2 months	• Fire weather forecasters	• fuel condition/dryness/storminess/ precipitation temporal distribution
3-6 months	• Industry operational planning	• scheduling: site access probability/ ice road construction window
6-8 months	• Industry operational planning	• Freeze-up/Break up probabilities
Interannual & Beyond	• Fishery managers • Engineers	• sea ice/ocean condition for stock assessment • precipitation amount/type for design

Initialization data to improve predictions

- Considered "low hanging fruit" for improving predictions
  - Regarding initialization for sea ice forecasts,
    - better use of upper ocean information for ice freeze up forecasts
    - ice thickness information may also improve summer predictions
- More general challenges
  - Effectively using available observations
  - Obtaining new observations
    - encourage useful observations from "ships of opportunity", industry, etc.?
    - new instrumentation for ice-covered waters?
  - Can we determine what data will be useful for predictions of other aspects of the Arctic system
- In longer term, we need a better understanding of where and what critical observations are needed for Arctic prediction
  - Design observing networks to fit these needs

Evaluating and Improving Predictions

- Low hanging fruit:
  - Assessment of existing systems (NMME) for high latitudes
  - Using NWP knowledge to inform evaluation metrics
  - Better capitalize on existing/ongoing research (synthesis efforts?)
- Longer term challenge of improving predictions
  - Need to understand (and communicate) inherent limits of predictability
  - Need for enhanced process understanding and improvements in models
    - Coupling across system components, Cloud microphysics