September 2009 Sea Ice Outlook: August Report
By: Todd Arbetter, Sean Helfrich, Pablo Clemente-Colón (Science and Applied Technology Dept)
Chris Szorc, Tom Holden, Caryn Panowicz (Operations Dept)
National/Naval Ice Center, Suitland, MD

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Best Guess: 4.151 million km^2
Method: Heuristic/Statistical

Update:

The current conditions (Figure 1):
Ice extent 8.375 million km^2
Ice Area 6.842 million km^2,
Average concentration 81.7%

Multiyear ice extent 4.900 million km^2
Multiyear ice area 2.544 million km^2
Average concentration: 51.9%

Methodology:

Using the most current hemispheric ice chart and ArcGIS, the map is edited to select all parcels with MYI as the primary ice type. All other parcels are discarded. The remaining ice is edited following the assumptions below. A senior ice analyst (Mr. Szorc) examines and approves the outlooks. Mr. Holden and Ms. Panowicz also provide input.

The Seasonal Outlooks:

Conservative: Any area with MYI survives
Ice extent: 4.773 million km^2
Ice area: 4.279 million km^2
Average concentration: 89.7%
MYI extent: 4.773 million km^2 (includes all parcels containing MYI)
MYI area: 2.439 million km^2
Average concentration: 51.1%

Moderate: Any area with 20% or more MYI survives
Ice extent: 4.151 million km^2
Ice area: 3.890 million km^2
Average concentration: 93.7%
MYI extent: 4.151 million km^2
MYI area: 2.253 million km^2
Average concentration: 54.3%

Aggressive: Any area with 40% or more MYI survives
Ice extent: 2.935 million km^2
Ice area: 2.785 million km^2
Average concentration: 94.9%
MYI extent: 2.935 million km^2

MYI area: 1.974 million km^2
Average concentration: 67.3%

Extreme: Any area with 70% or more MYI survives
Ice extent: 1.849 million km^2
Ice area: 1.760 million km^2
Average concentration: 95.2%
MYI Extent: 1.849 million km^2
MYI Area: 1.432 million km^2
Average concentration: 77.4%

As was the case last year, the charts represent the *parcels* of ice that we believe will survive the summer. However it *does not* represent their final location. Drift due to wind and water will transport along the Beaufort Gyre out of the Beaufort and Chukchi Seas. Some ice in the Amundsen Basin will be transported out into the Barents Sea. The distribution of the ice in September 2009 will be very different than the current August 1 conditions.

From the spread of prognostications, we believe the Moderate case (4.151 million km^2) is the most likely. This would be a record or near-record, depending on the method used to measure the ice extent and concentration. The National Ice Center (NIC) uses ice charts where the data used to make the chart can come from a variety of sources (e.g., RadarSAT, MODIS, AMSR-E, SSM/I). The National Snow and Ice Data Center (NSIDC)—the center most often cited for sea ice extrema—uses the Sea Ice Index, based primarily on SSM/I measurements. Differences in how the data are processed can also lead to different values of sea ice extent and area.

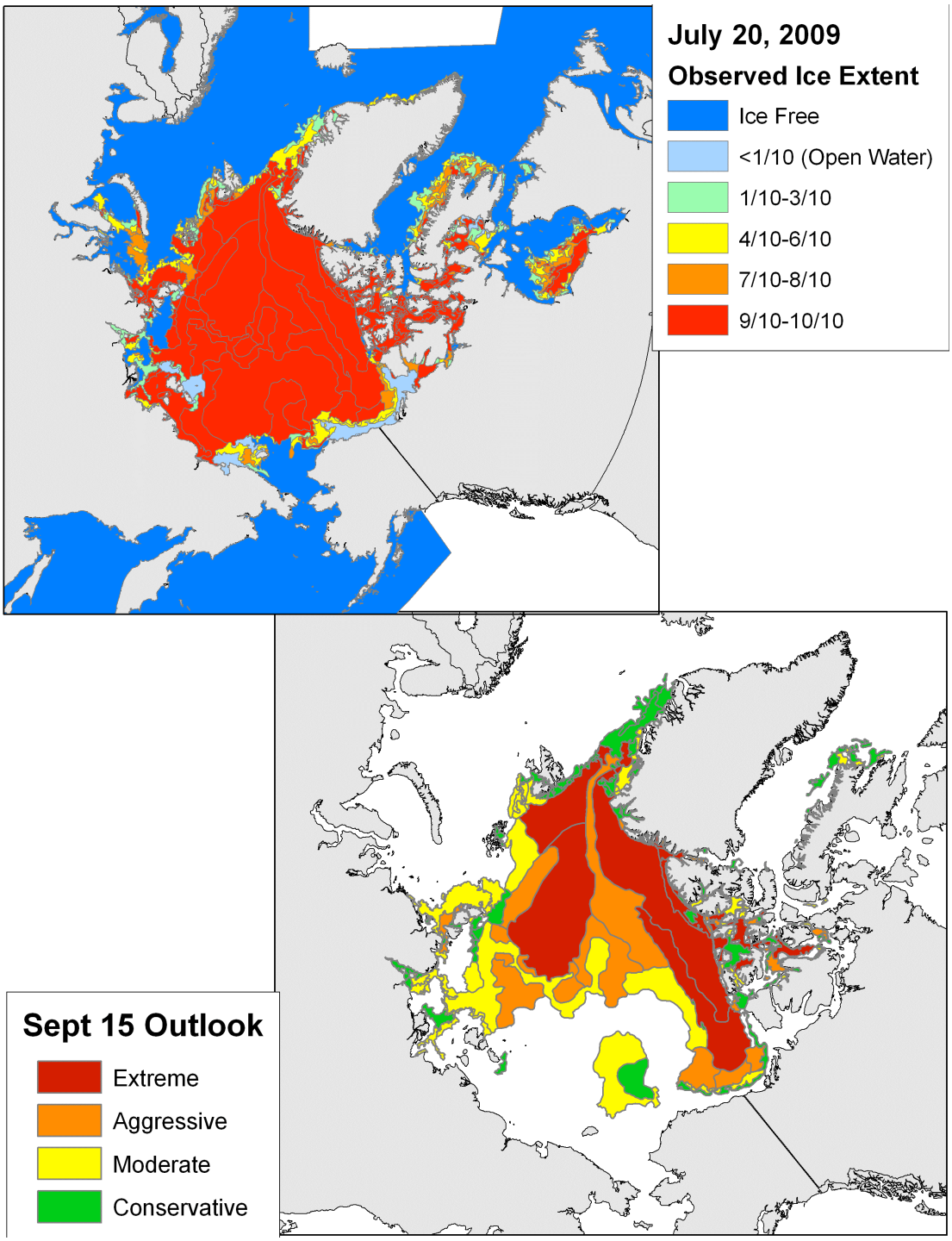

Figure 1: Sea ice conditions for June 22, 2009, and projections for September 15, 2009. For the projections, Extreme = red, Aggressive = red + orange, Moderate = red + orange + yellow, Conservative = red + orange + yellow + green.