



MEASURING UNCERTAINTY IN SEA ICE CONCENTRATION OBSERVATIONS IN CANADIAN ICE SERVICE ICE CHARTS

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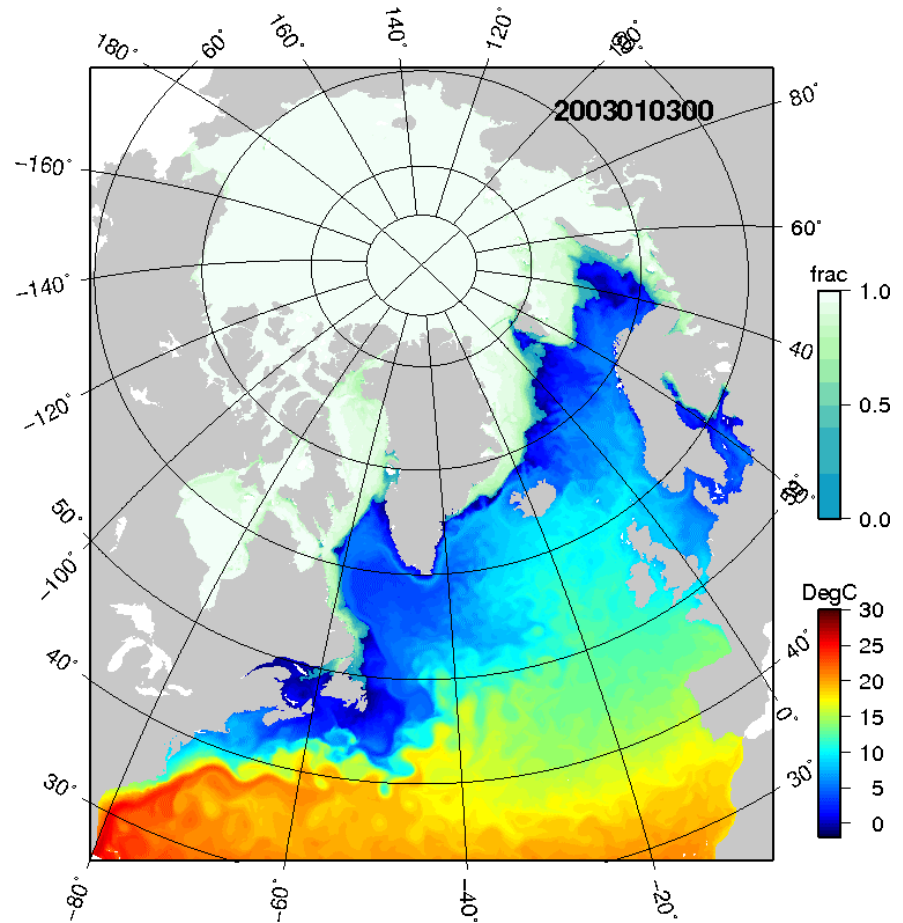
³Recherche en Prédiction Numérique Environnementale, Environnement et Changement Climatique Canada, Dorval, Quebec, Canada

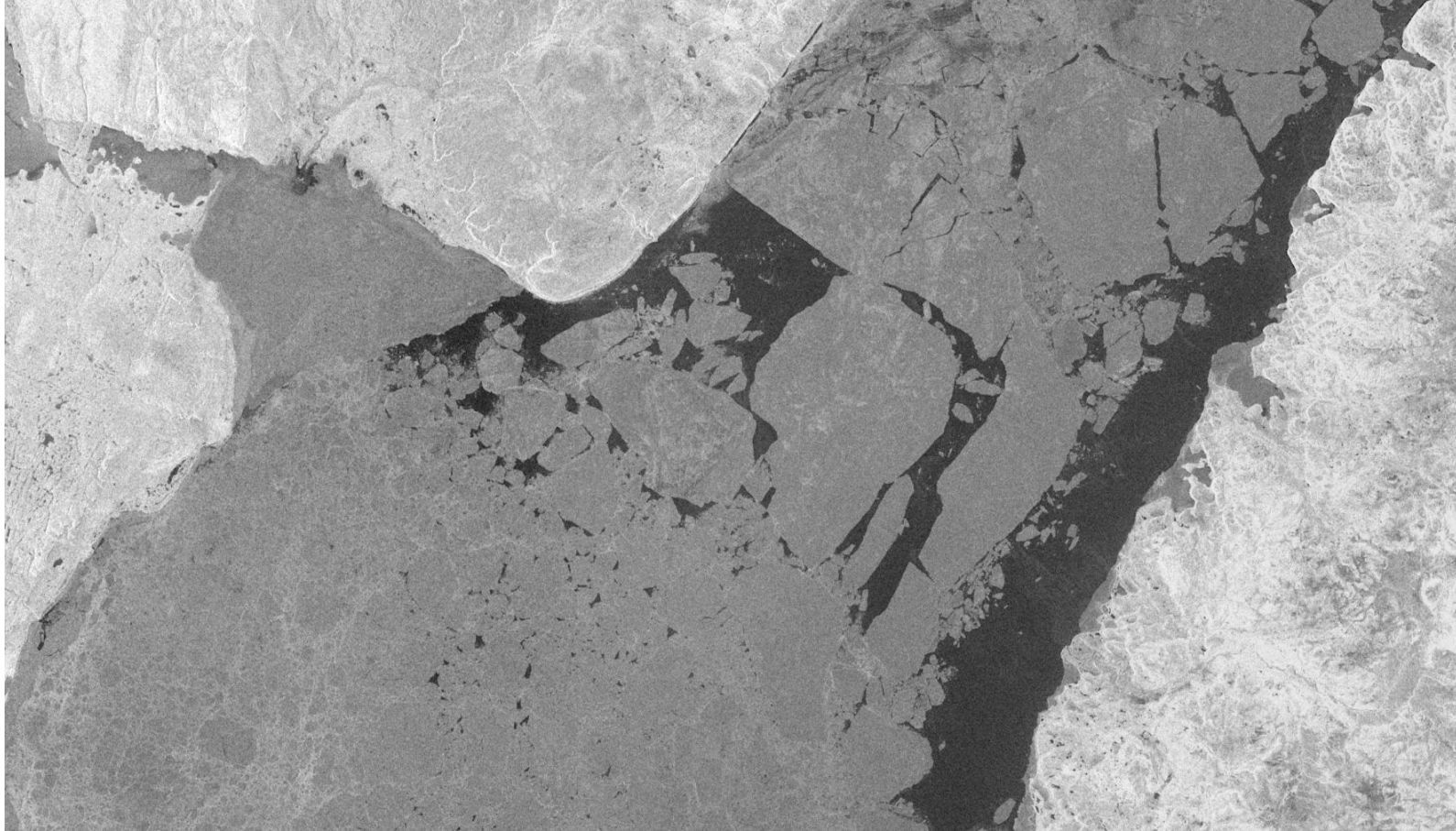
November 9 or 10, 2020,
depending where you are



RIOPS

- Regional Ice Ocean Prediction system
- Ice and ocean forecast and analysis products from RIOPS:
 - sea surface height (m)
 - water temperature (°C)
 - water salinity (psu)
 - currents (m/s)
 - sea ice fraction (%)
 - snow depth on sea ice (m)
 - ice thickness (m)
 - ice drift velocity (m/s)
 - ice pressure (N/m)





RADARSAT-1

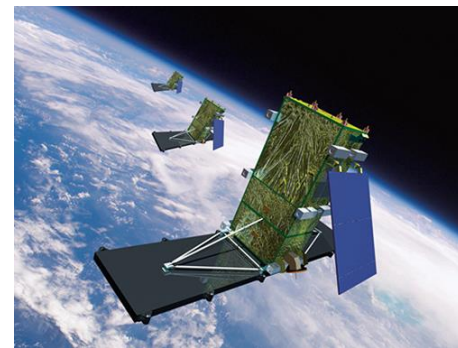
1995 - 2013

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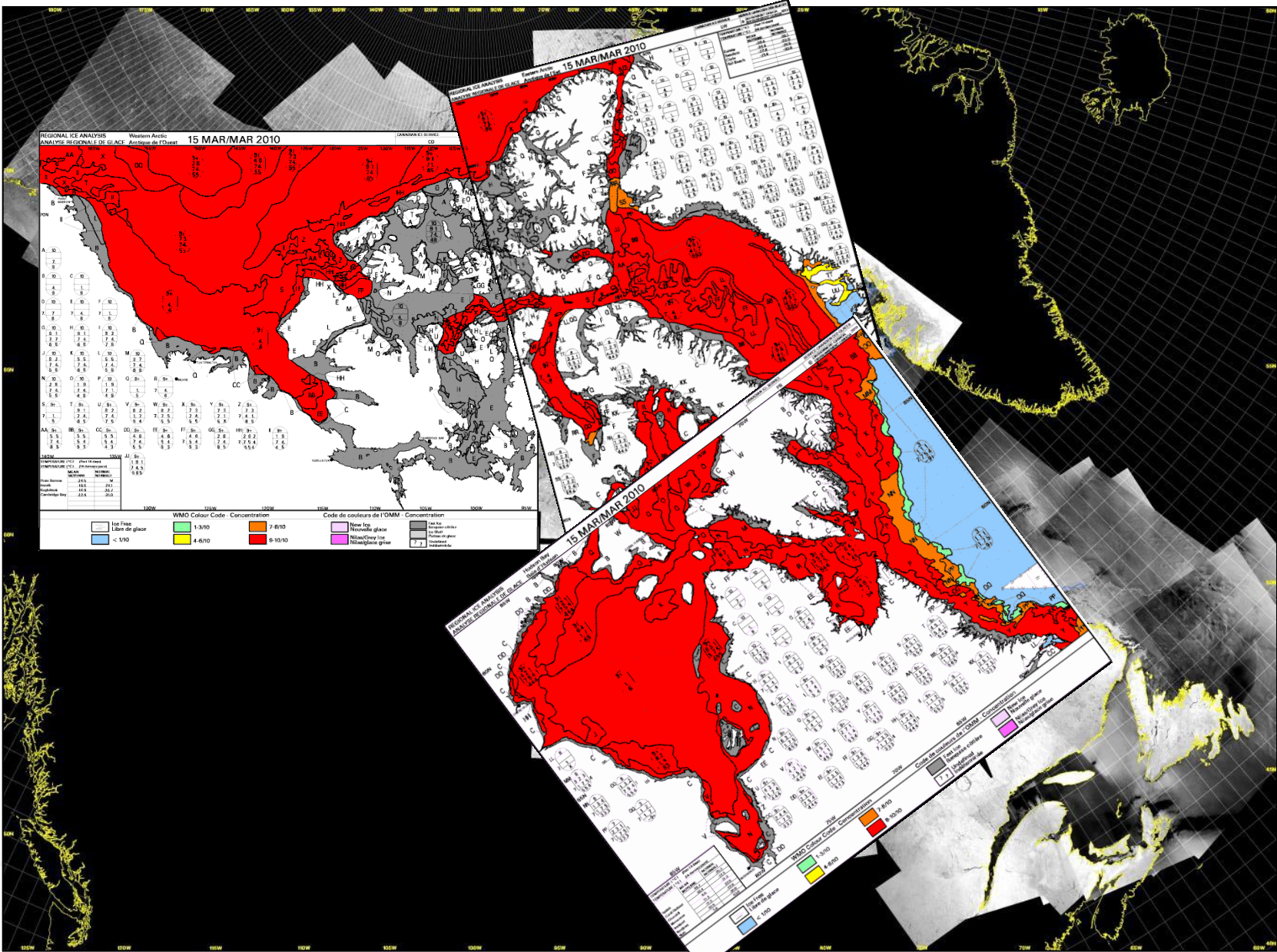
1996 - 2013

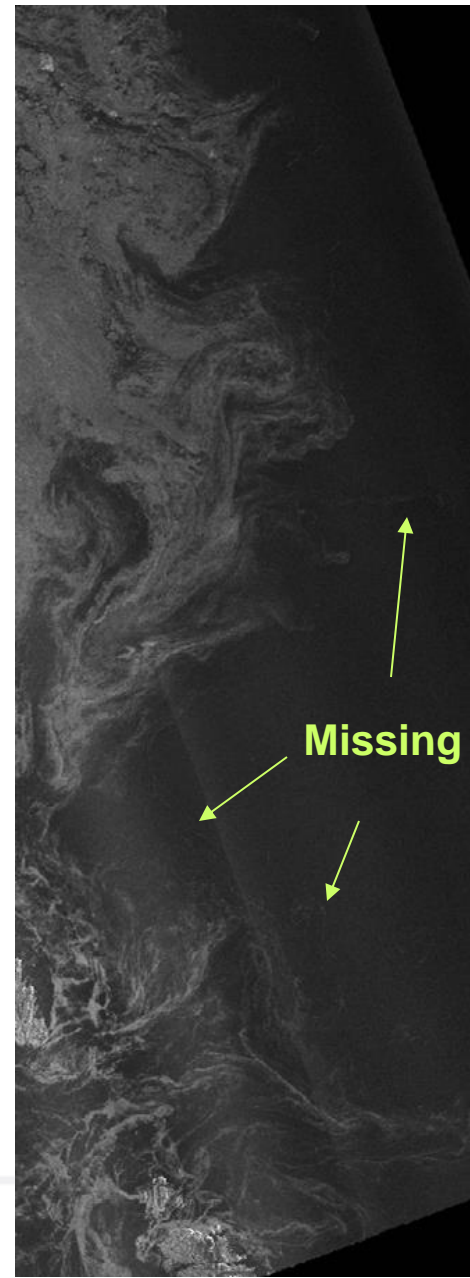
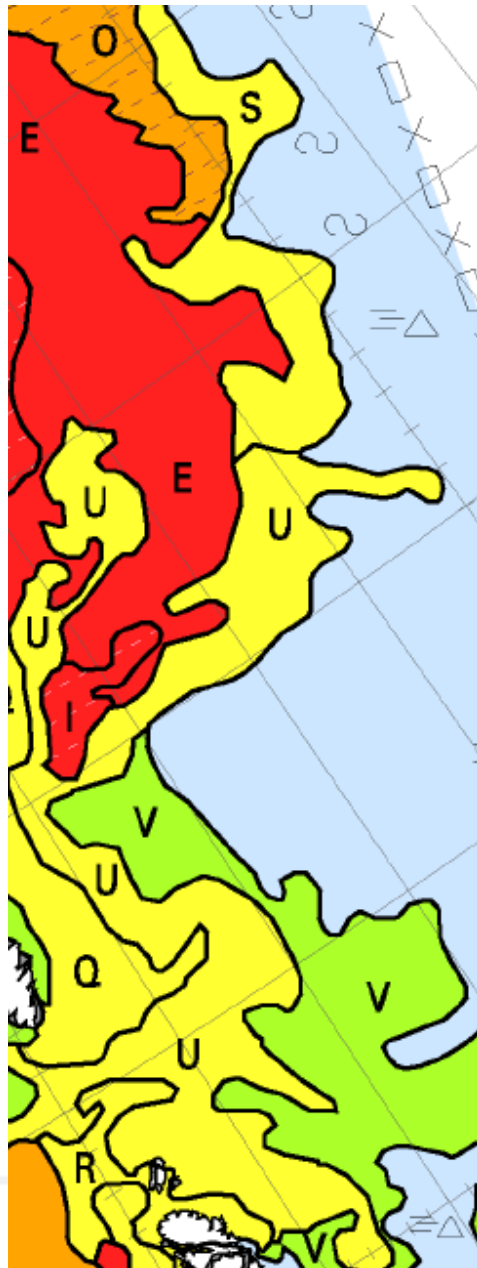
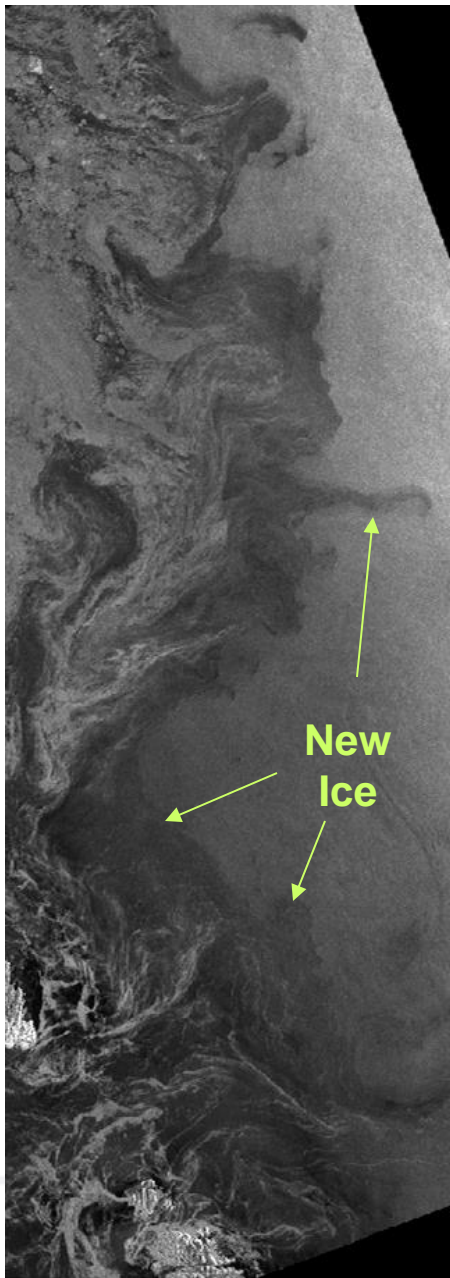


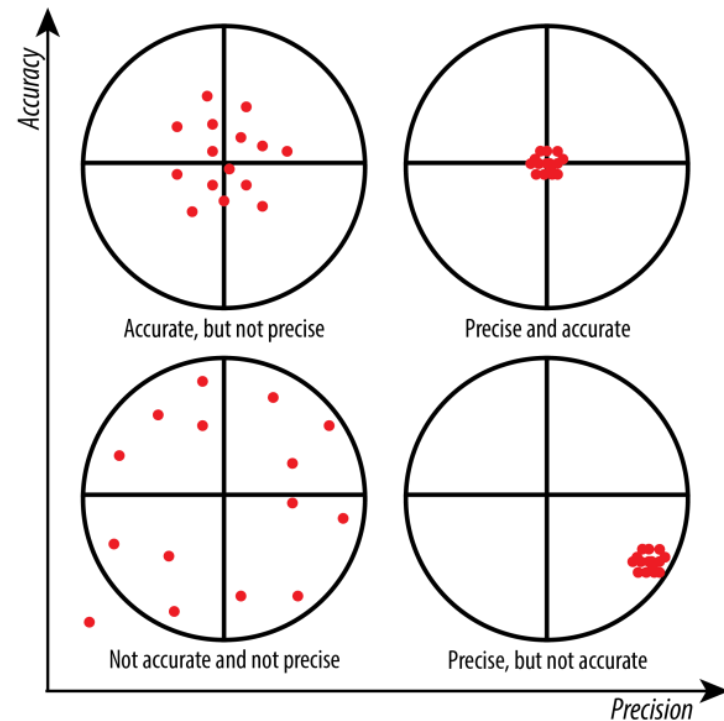
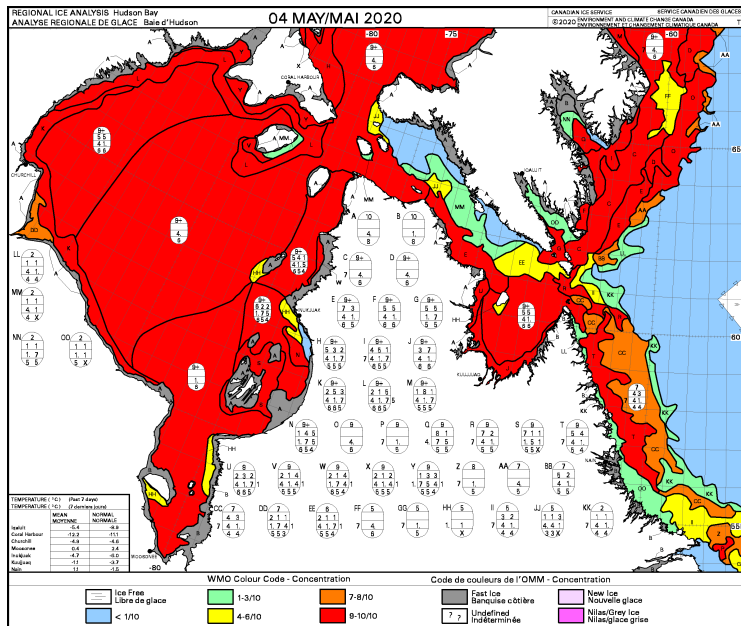
2007 - 2020



Present







1. How much do the charts deviate from the satellite data?

2. How consistent are these charts between analysts?

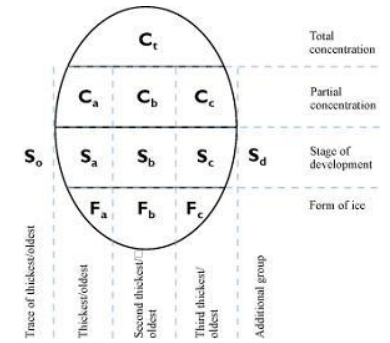
Ice Concentration

76 polygons remaining

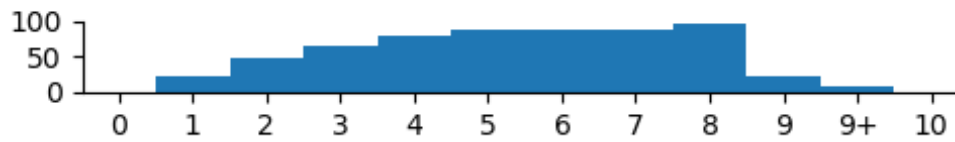
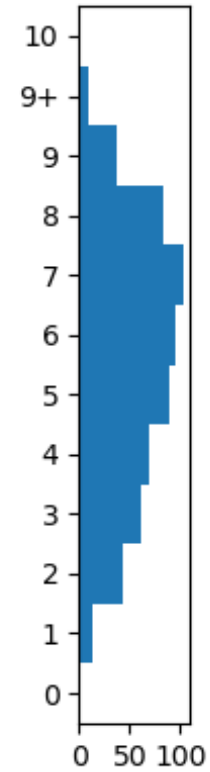
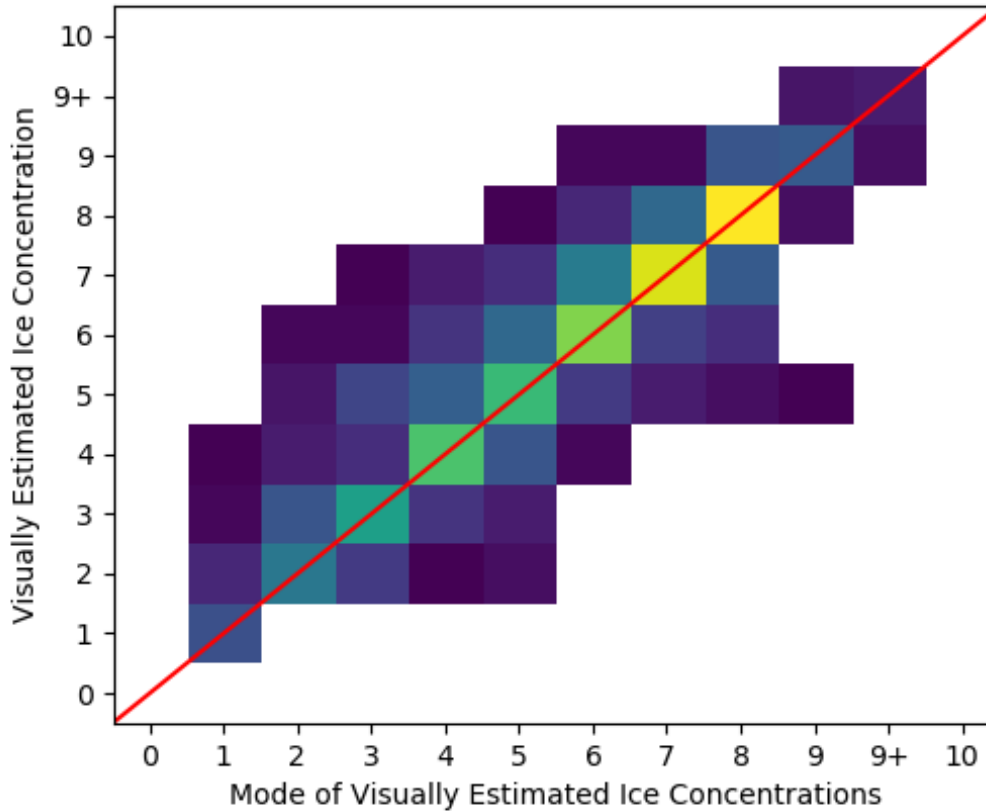
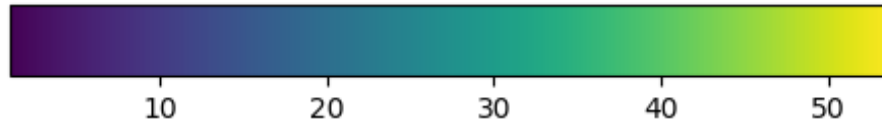
September 27, 2011 @ 18:42

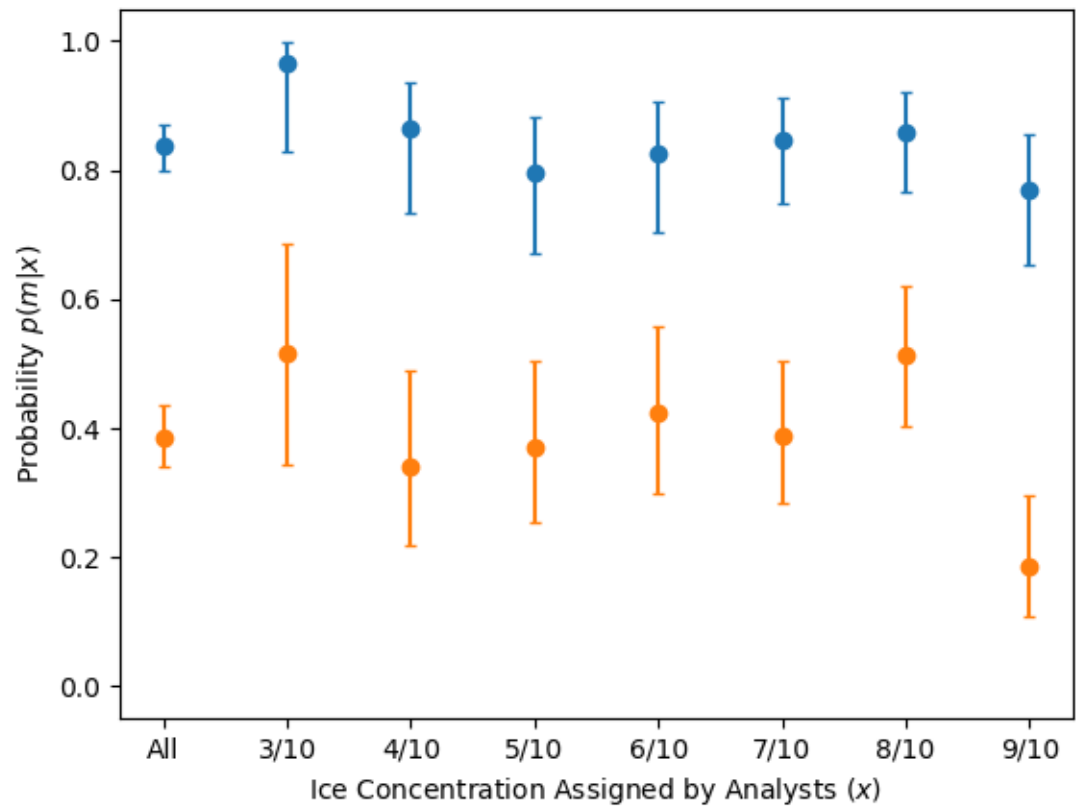
Open water
 1/10
 2/10
 3/10
 4/10
 5/10
 6/10
 7/10
 8/10
 9/10
 9+/10
 10/10

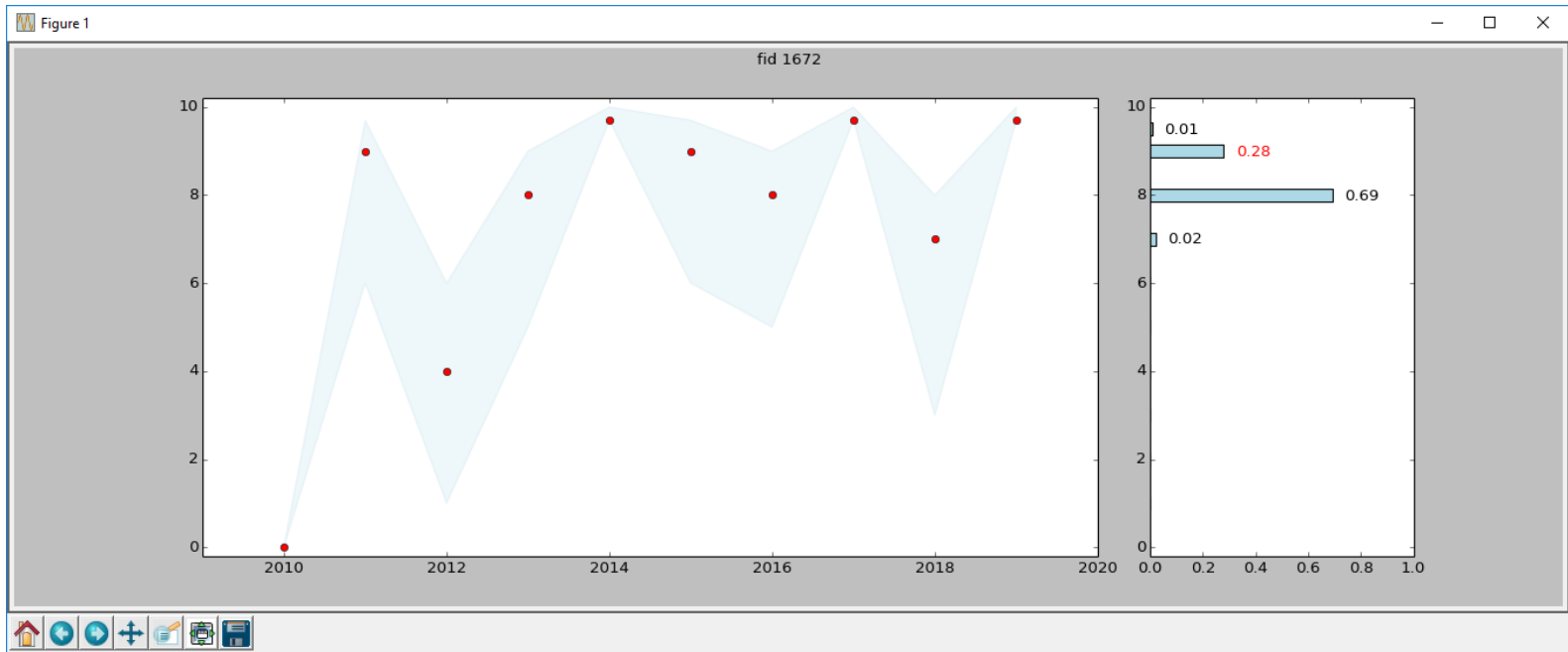
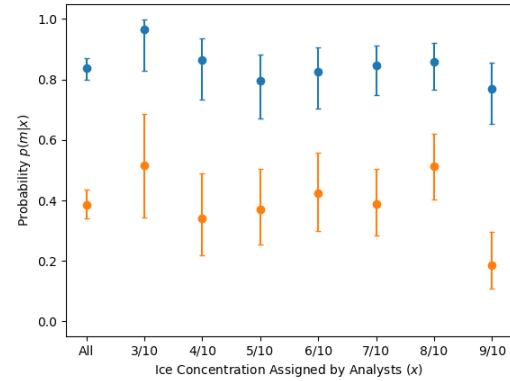
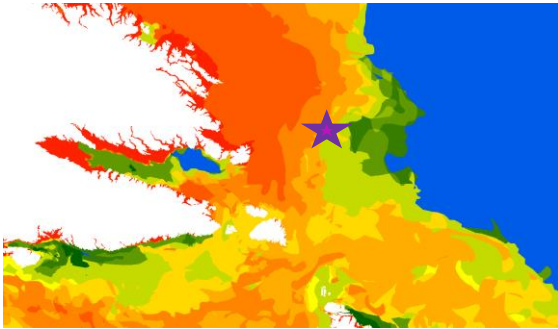
Submit Answer MAGIC Results



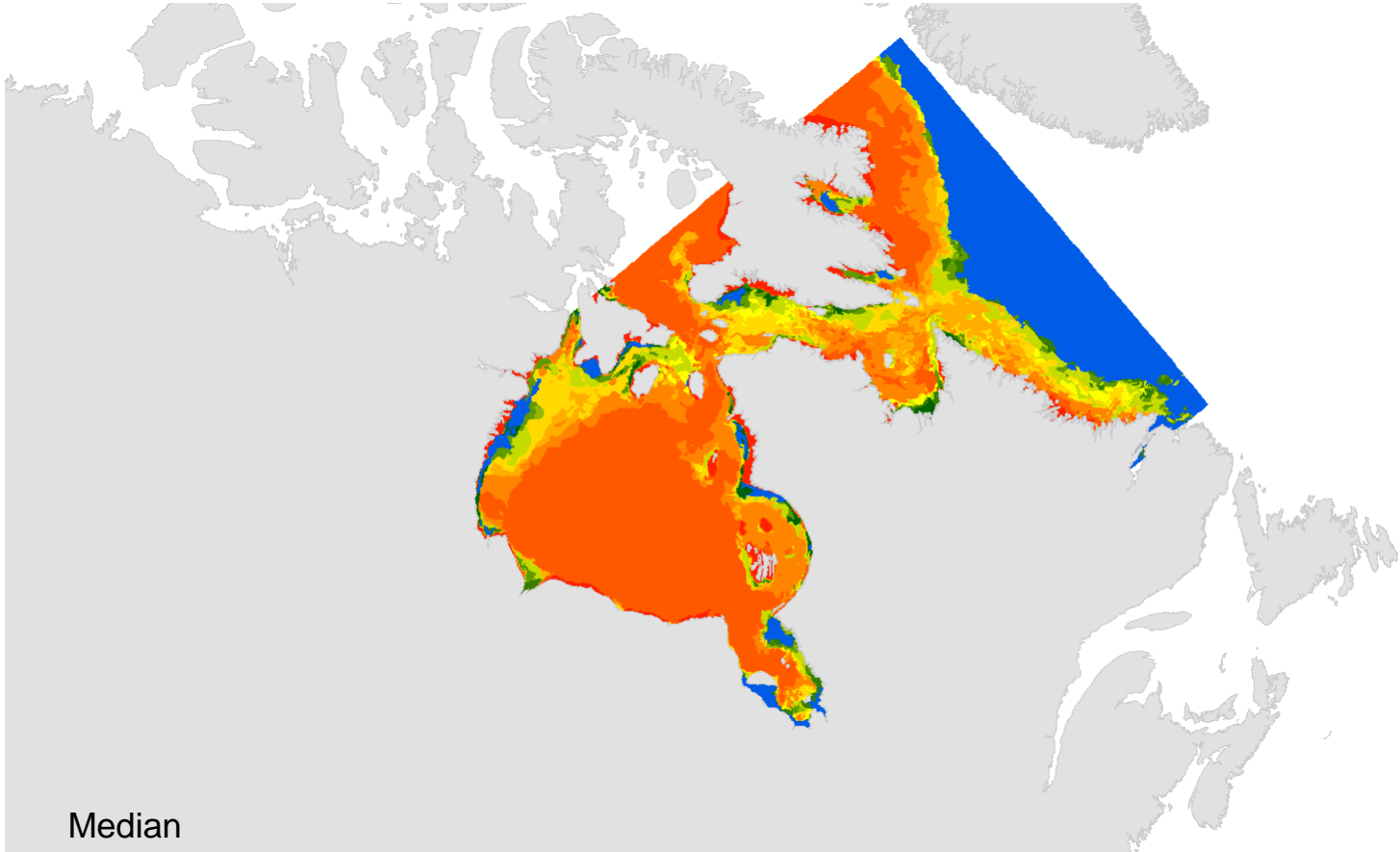
Percentage of Estimates [%]

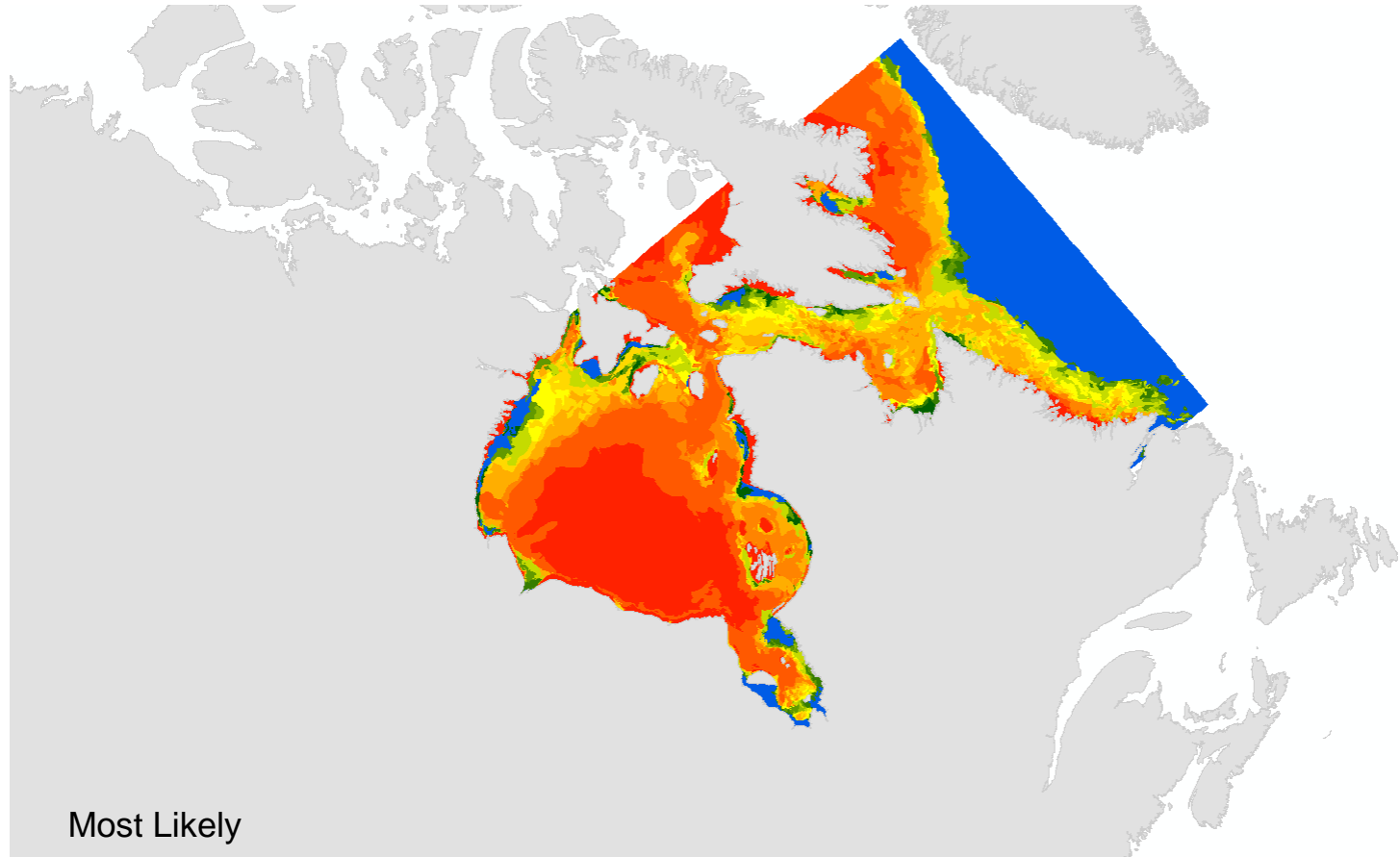






We can now assign probabilities to our observations.





Most Likely

$$\alpha = 1 - \frac{D_o}{D_e}$$

$$D_o = \frac{1}{n} \sum_c \sum_k o_{ck \text{ metric}} \delta_{ck}^2$$

$$D_e = \frac{1}{n(n-1)} \sum_c \sum_k n_c \cdot n_k \text{ metric} \delta_{ck}^2$$

Original Research

Traumatic Memory of One's Son Gone Missing in War: Content Analysis Using Krippendorff's Alpha

Slavica Kozina¹, Martin Kowalski¹ , Mirela Vlastelica¹,
Tonći Mastelić¹, and Josip A. Borovac¹

SAGE Open
January–March 2019: 1–9
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DOI: 10.1177/2158244019839627
journals.sagepub.com/home/sgo


Observational Study

Medicine[®]

OPEN

Is there agreement between evaluators that used two scoring systems to measure acute radiation dermatitis?

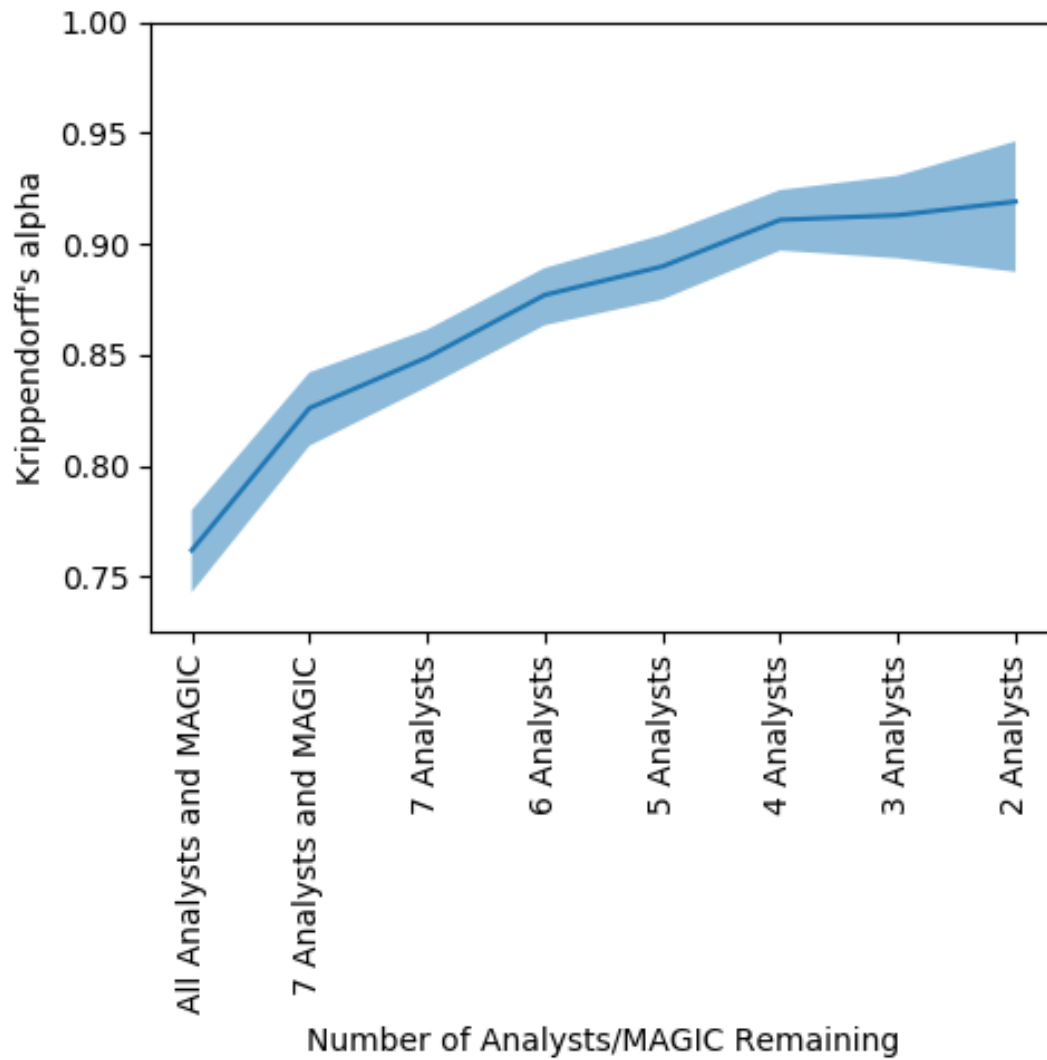
Marcela de Andrade Fuzissaki, PhD^a, Carlos Eduardo Paiva, PhD^b, Thais de Oliveira Gozzo, PhD^c,
Marcelo de Almeida Maia, PhD^d, Paula Philbert Lajolo Canto, PhD^e, Yara Cristina de Paiva Maia, PhD^{a,*}

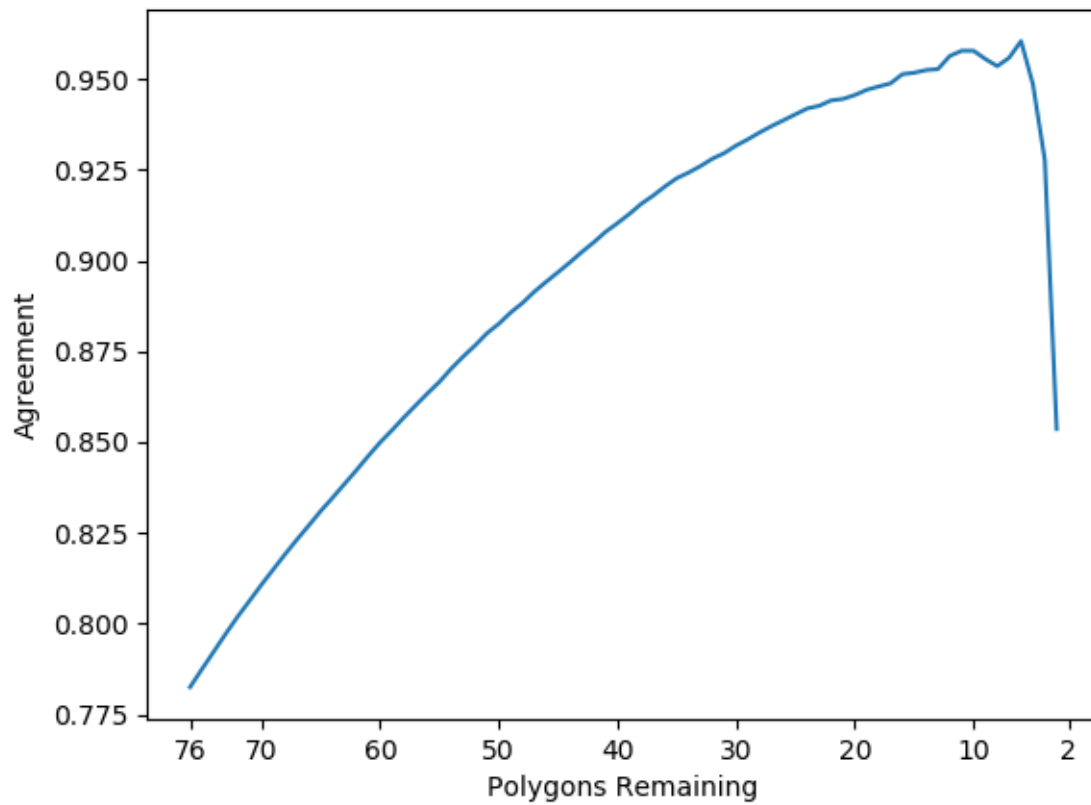
Items judged:	1	2	3	4	5	6	7	8	9	10
<i>Meg:</i>	0	1	0	0	0	0	0	0	1	0
<i>Owen:</i>	1	1	1	0	0	1	0	0	0	0

	0	1	
0	10	4	14
1	4	2	6
	14	6	20

$$\text{binary } \alpha = 1 - \frac{D_o}{D_e}$$

$$\text{binary } \alpha = 1 - (20 - 1) \frac{4}{14 \cdot 6} = 0.095$$





CONCLUSIONS & FUTURE WORK

- We have measured the uncertainty in multi-categorical observations used to initialize the RIOPS model
 - Krippendorff's alpha can be useful for measuring agreement between analyst/forecaster interpretations
 - Seeing how this variability impacts model forecasts
 - Spatial variability in how polygons are delineated
-



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