

		Grading Matrix Sea ice lab			
		Basic (D-E)	Intermediate ( B-C )	Advanced (A)	Bonus
<b>Instrument resolution</b>		Student can calculate the footprint of the instrument	Student takes into account the geometry of the satellite	Student understands what why footprint varies across the channels	The student calculates different resolution across and along track
<b>Forward model</b>	Surface emissivity	Student can calculate the radiance of a surface given the emissivity and physical temperature	Student understands the concept of brightness temperature	Student can explain how to combine two surfaces in the same footprint	The student can problematize the consequences different footprints
	Polarization		Student can explain what polarization is		The student can explain why the emissivity varies with polarization
	Concepts	The student can explain what a forward model is	The student can discuss the limitation of the forward model implemented	The student can discuss how to improve or expand the forward model	The student can suggest a completely alternative way of making a forward model for these measurements
<b>Inverse model</b>	Weighting function matrix	The student can explain the meaning of the forward model equation $y = Kx$	The student can explain why it is useful to express the forward model as a matrix equation	the student can show how to create the matrix <b>K</b> from the forward model	
	Inverse method	The student can explain what an inverse model and retrieval is	The student can explain why a least squares method is required here (as opposed to just inverting <b>K</b> )	The student can discuss the limitation of the inverse model	The student suggests improvements to the inverse model
<b>Numerical Results</b>	Output values	The student has correctly implemented the forward model	The student has correctly implemented the inverse model	The student has correctly implemented the forward and inverse model	The student has completed the challenge
<b>Analysis</b>	Noise	The student can show the effect of noise on the data	The student can reflect on the effect of noise including determining a max noise level	Has tested other types of noise than random	
	Instrument	The student can show the effect of changing the number of channels on the retrieval	The student can analyze and discuss these effects	The student can discuss the relative importance of adding a new frequency vs adding a new polarization	How is does this change when clouds are added?