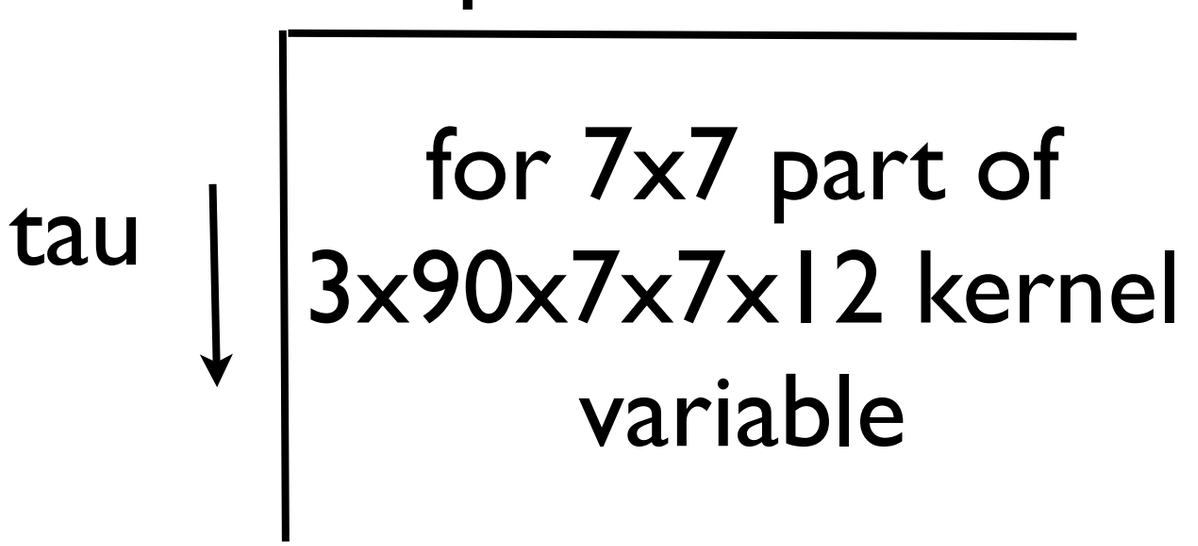
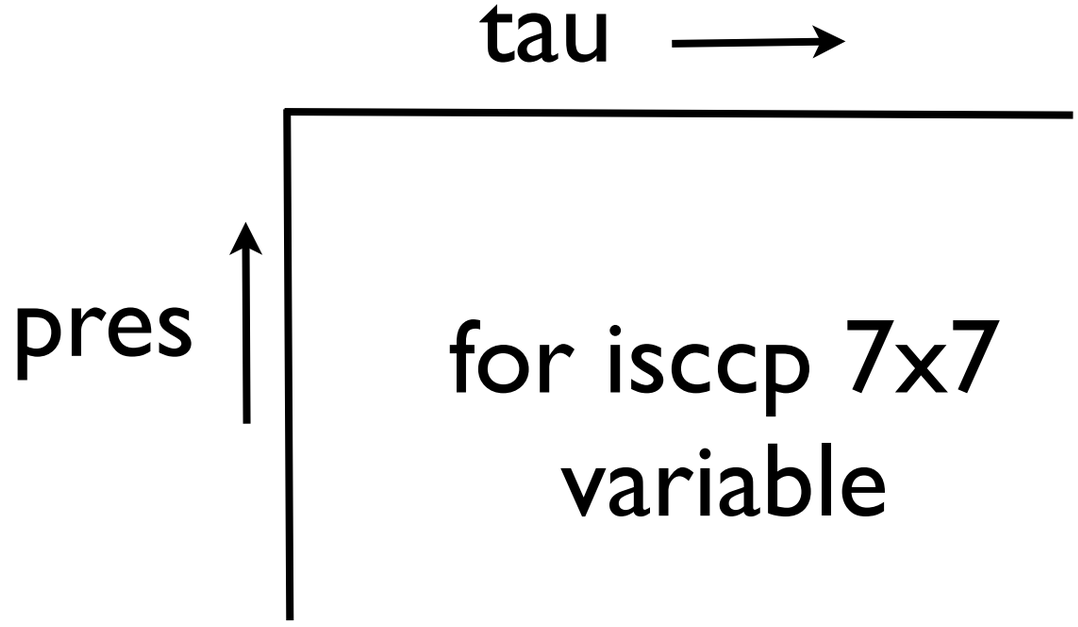
Kernels

- Issue was a matter of orientation.
- Kernel variable's 7x7 orientation known thanks to Zelinka charts.
- isccp 7x7 orientation had pressure going in opposite direction (knew this)
- isccp 7x7 orientation also reversed order of pressure and tau (missed this before)

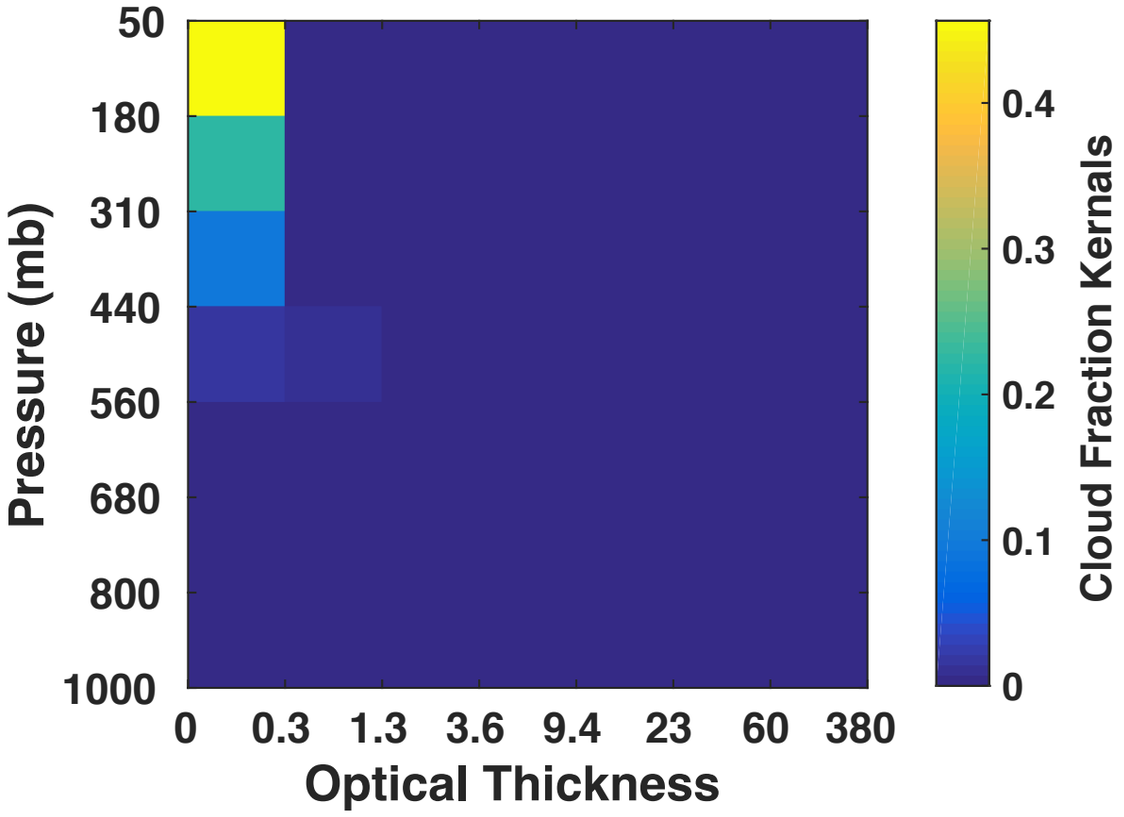
in MATLAB it looks like



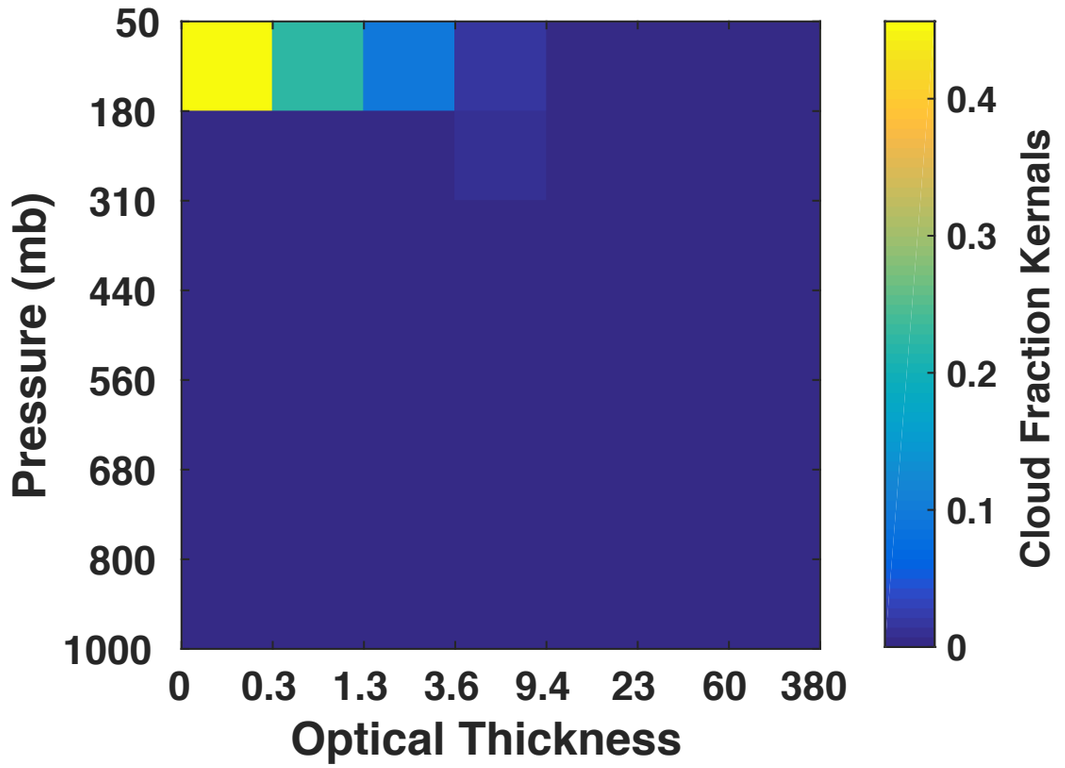
but it looks like



So instead of...



...it's actually...



G205_ISCCP	Model	Climate	C/M %	Obs	O/M %	NOSHOC 1M 301K
LWCF	36.8	51.4	140%	37.5	102%	1km resolution, 64km grid
SWCF	-42.4	-47.6	112%	-47.4	112%	
NCF	-5.6	3.9		-9.9		

G405_ISCCP	Model	Climate	C/M %	Obs	O/M %	NOSHOC 1M 305K
LWCF	35.9	52.0	145%	38.1	106%	1km resolution, 64km grid
SWCF	-40.7	-46.1	113%	-45.9	113%	
NCF	-4.8	5.9		-7.8		

G305_ISCCP	Model	Climate	C/M %	Obs	O/M %	SHOC 1M 301K
LWCF	37.0	54.7	148%	38.7	105%	1km resolution, 64km grid
SWCF	-32.5	-38.8	119%	-38.6	119%	
NCF	4.5	15.9		0.1		

G505_ISCCP	Model	Climate	C/M %	Obs	O/M %	SHOC 1M 305K
LWCF	40.9	60.5	148%	43.8	107%	1km resolution, 64km grid
SWCF	-39.5	-46.1	117%	-45.9	116%	
NCF	1.4	14.4		-2.1		

G205M_ISCCP	Model	Climate	C/M %	Obs	O/M %	NOSHOC 2M 301K
LWCF	32.2	57.0	177%	38.3	119%	1km resolution, 64km grid
SWCF	-33.5	-39.1	117%	-38.9	116%	
NCF	-1.3	17.9		-0.6		

G405M_ISCCP	Model	Climate	C/M %	Obs	O/M %	NOSHOC 2M 305K
LWCF	31.0	56.0	181%	37.8	122%	1km resolution, 64km grid
SWCF	-32.6	-38.4	118%	-38.2	117%	
NCF	-1.6	17.6		-0.4		

G305M_ISCCP	Model	Climate	C/M %	Obs	O/M %	SHOC 2M 301K
LWCF	29.5	54.4	184%	35.7	121%	1km resolution, 64km grid
SWCF	-25.1	-30.2	120%	-30.1	120%	
NCF	4.4	24.2		5.6		

G505M_ISCCP	Model	Climate	C/M %	Obs	O/M %	SHOC 2M 305K
LWCF	32.7	59.0	180%	39.7	121%	1km resolution, 64km grid
SWCF	-31.0	-36.2	117%	-36.1	116%	
NCF	1.7	22.8		3.6		

Observation Kernels are much closer now than the climate kernels.

Kernels now have higher LWCF and SWCF values than model stat file output variables.

SHOC runs have positive NCF, NOSHOC has negative NCF.

Double moment runs have smaller gap between model and obs NCF than do the single moment runs.

Forcings

25-day avg forcings (W/m2 per K)

1M NOSHOC	Model	Climate	C/M %	Obs	O/M %
LWCF	-0.225	0.15	1.25%	0.15	1%
SWCF	0.425	0.375	0.25%	0.375	0.25%
NCF	0.2	0.5		0.525	

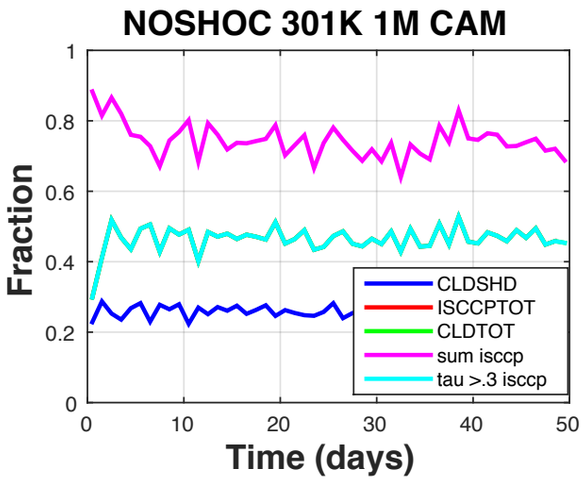
1M SHOC	Model	Climate	C/M %	Obs	O/M %
LWCF	0.975	1.45	0%	1.275	0.50%
SWCF	-1.75	-1.825	-0.50%	-1.825	-0.75%
NCF	-0.775	-0.375		-0.55	

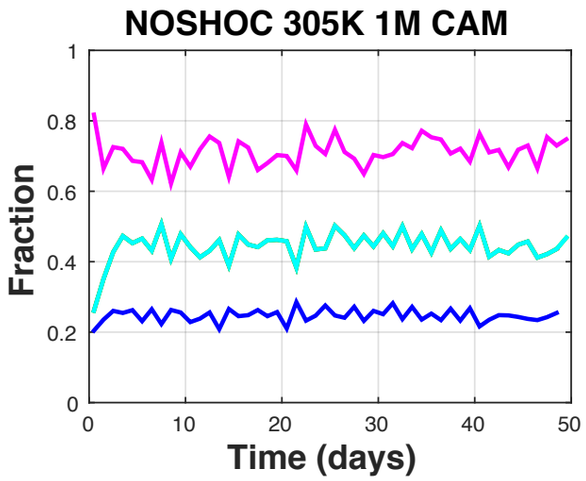
2M NOSHOC	Model	Climate	C/M %	Obs	O/M %
LWCF	-0.3	-0.25	1%	-0.125	0.75%
SWCF	0.225	0.175	0.25%	0.175	0.25%
NCF	-0.075	-0.075		0.05	

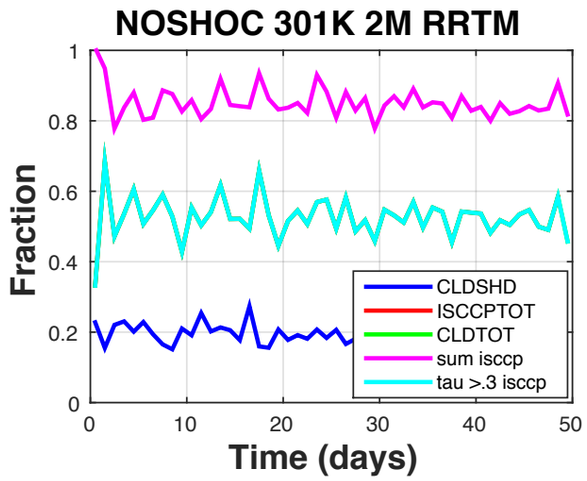
2M SHOC	Model	Climate	C/M %	Obs	O/M %
LWCF	0.8	1.15	-1%	1	0
SWCF	-1.475	-1.5	-0.75%	-1.5	-1%
NCF	-0.675	-0.35		-0.5	

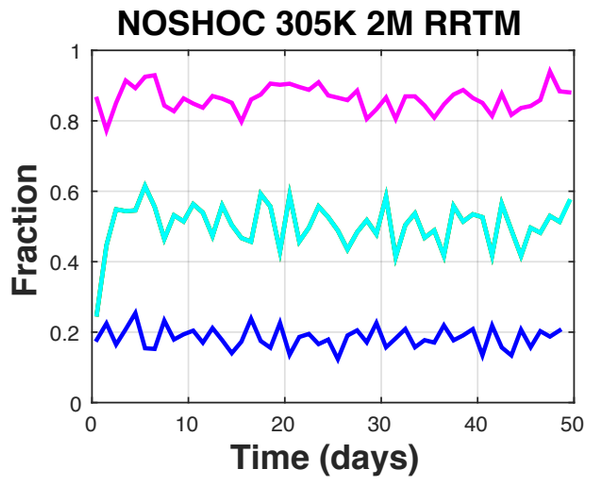
SHOC/NOSHOC seems to be stronger forcing.
Lots of similarity between 1M and 2M SHOC.
Less similarity in NOSHOC results (LWCF sign differences).

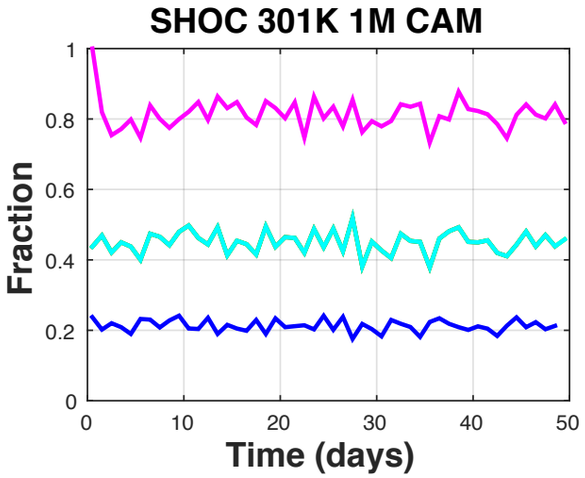
Cloud Fraction

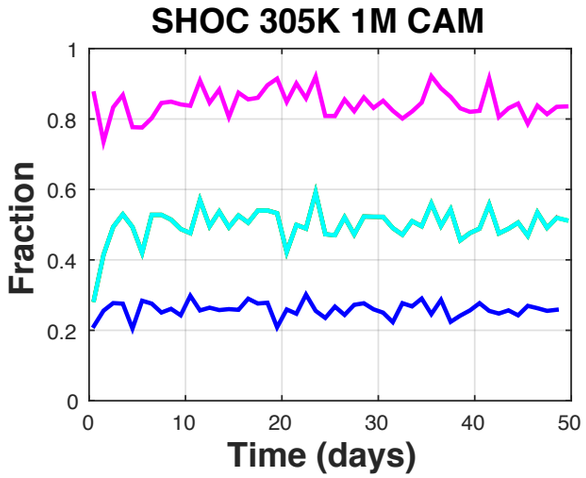


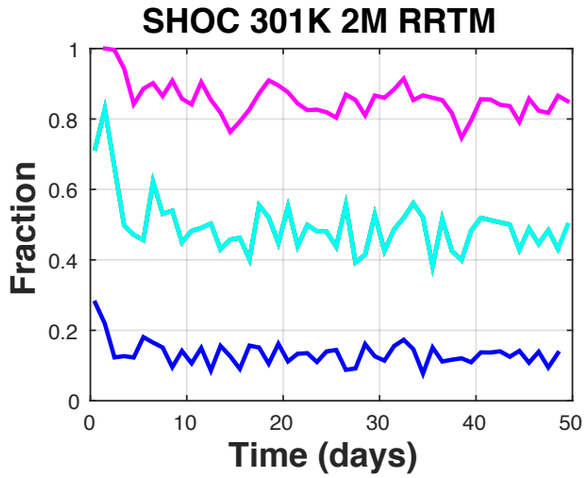


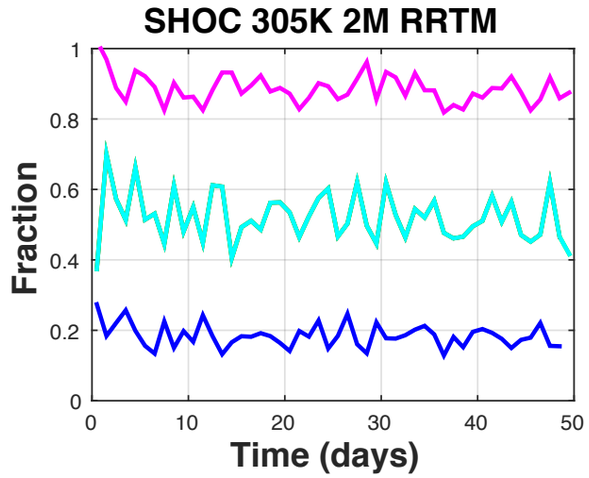




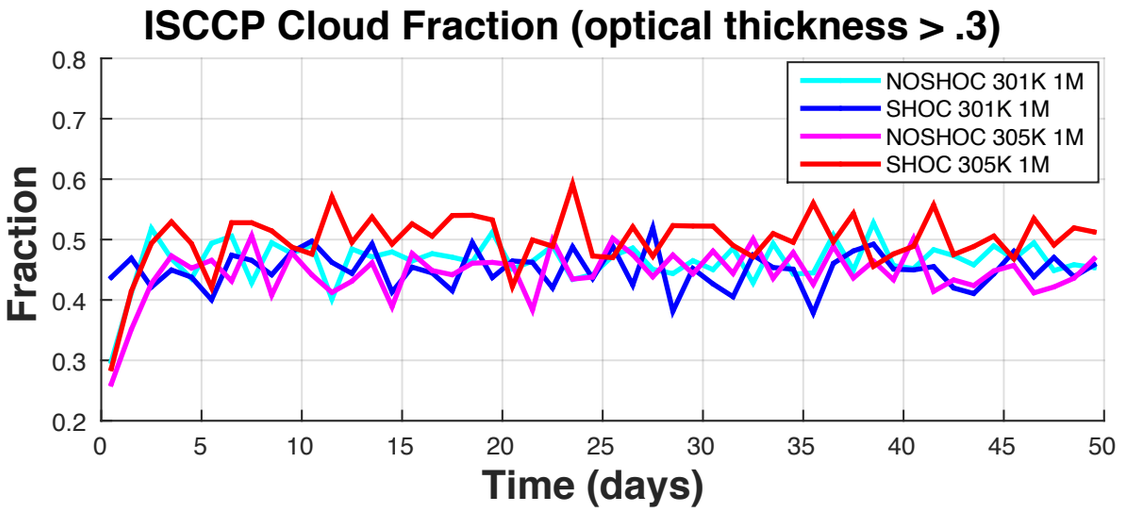


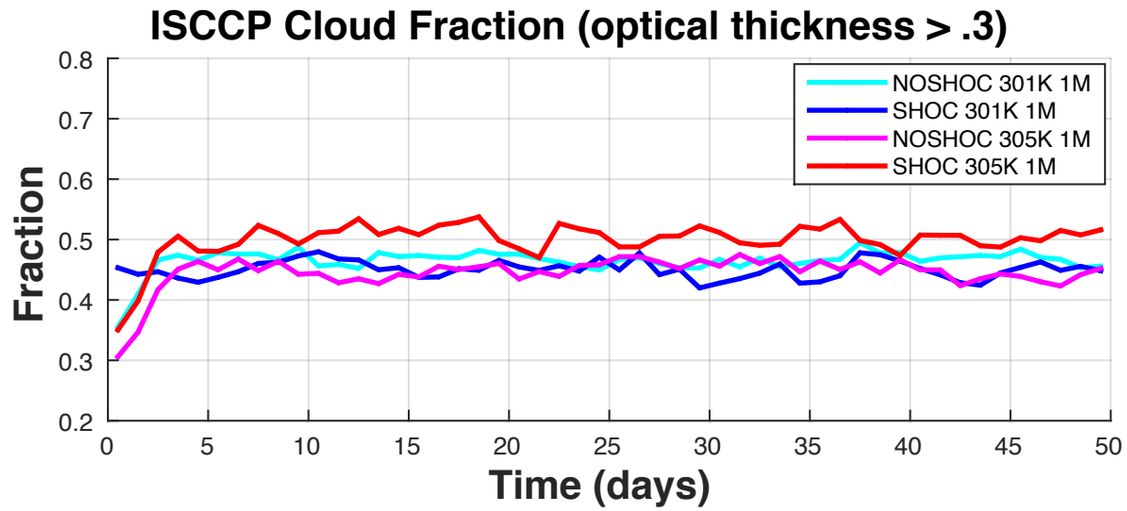


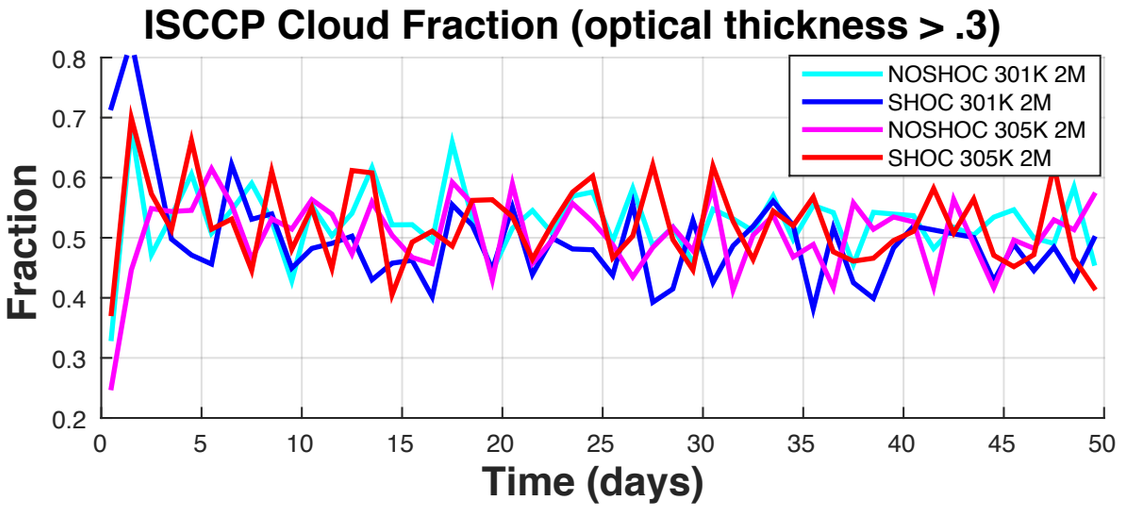


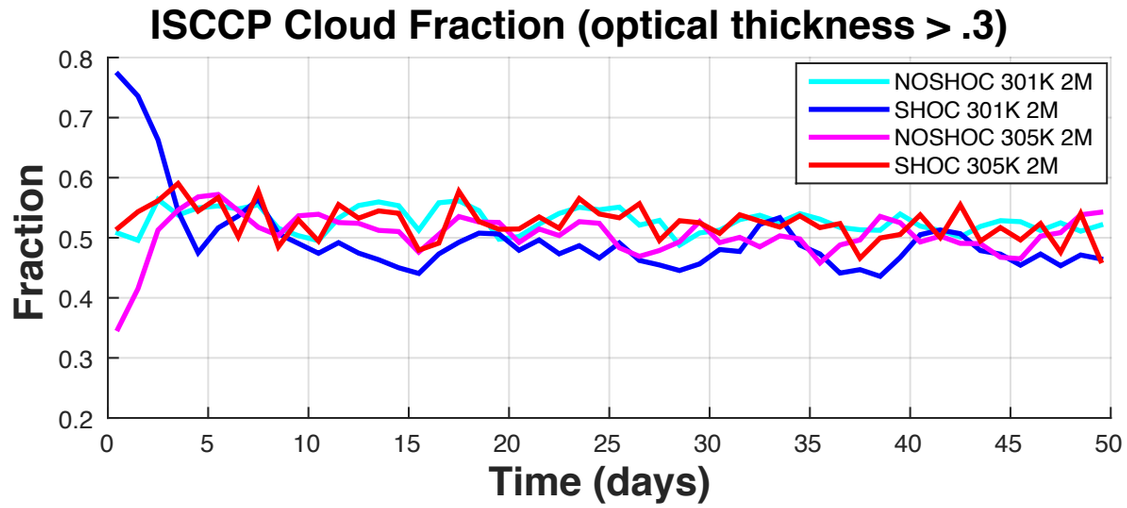


Cloud Fraction

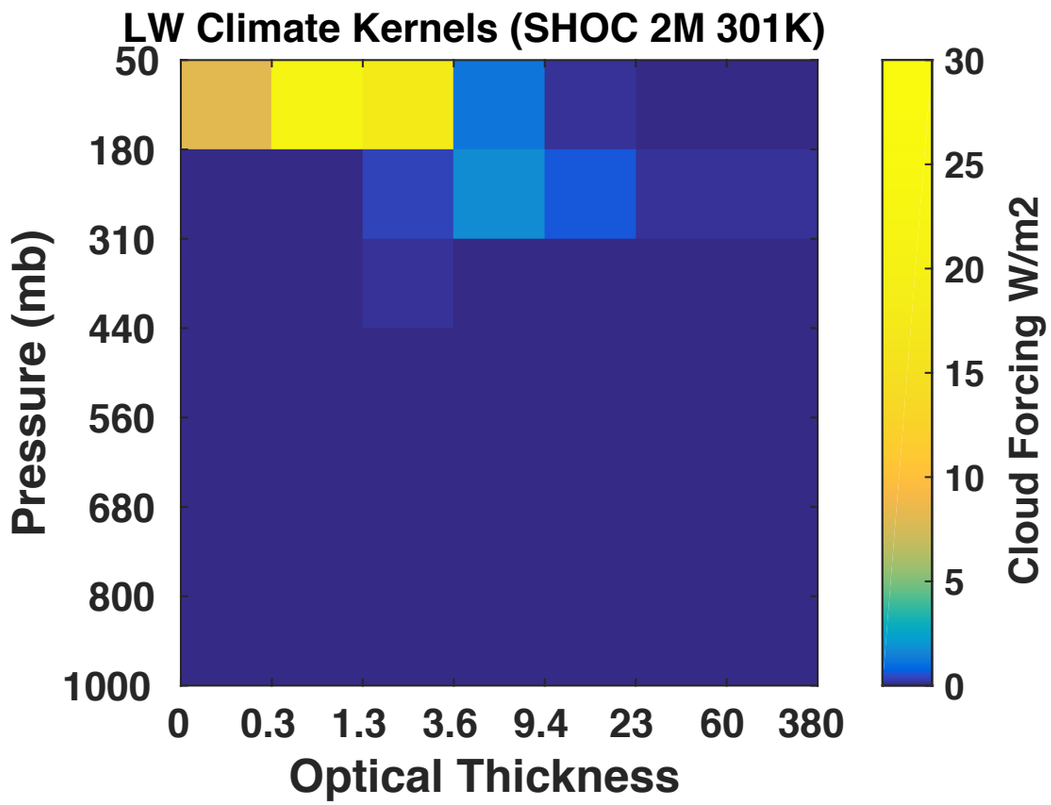


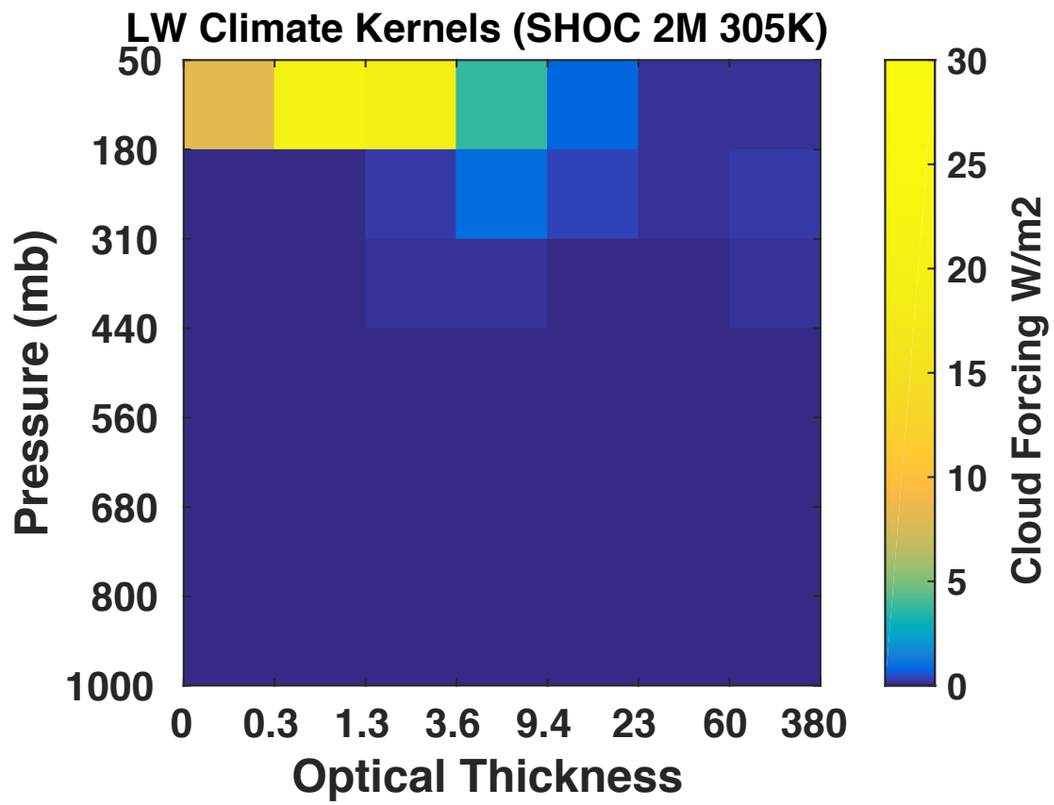


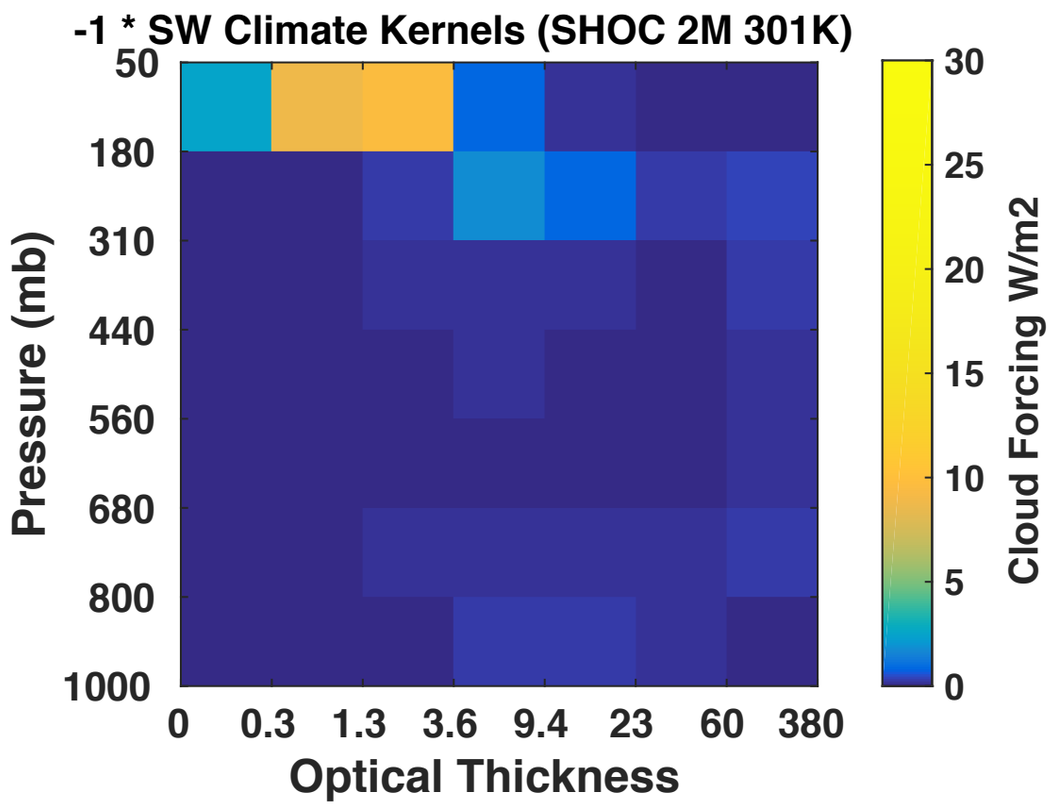


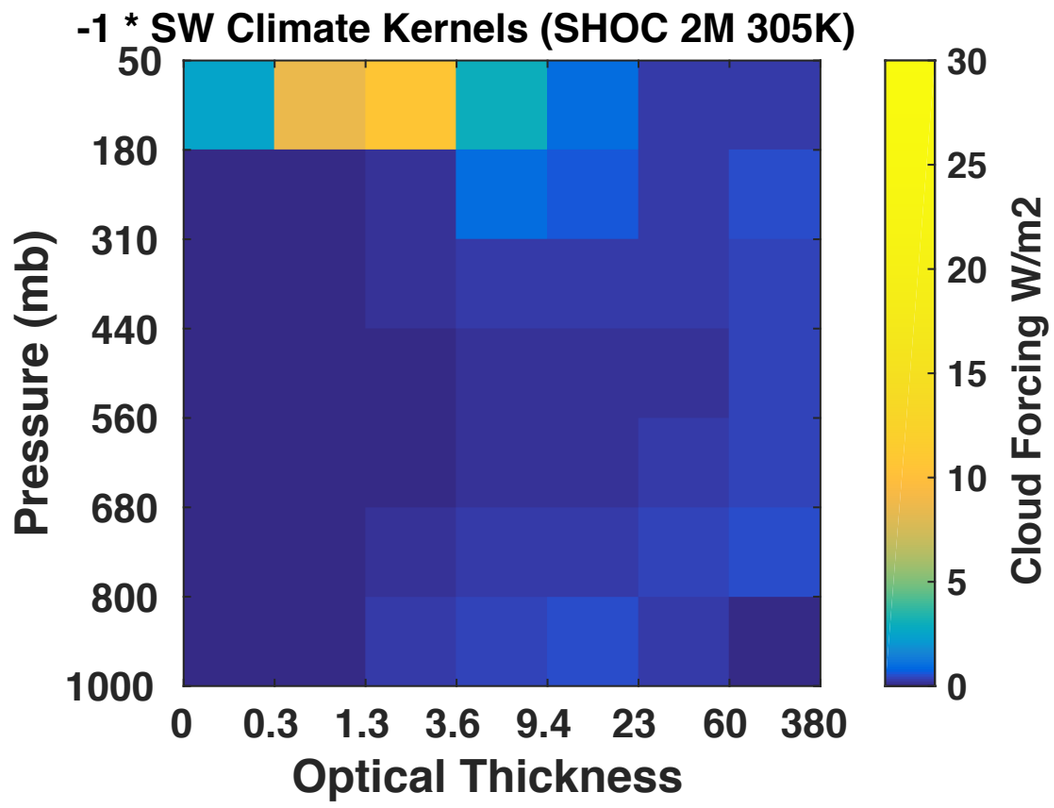


LW and SW Kernel Fluxes

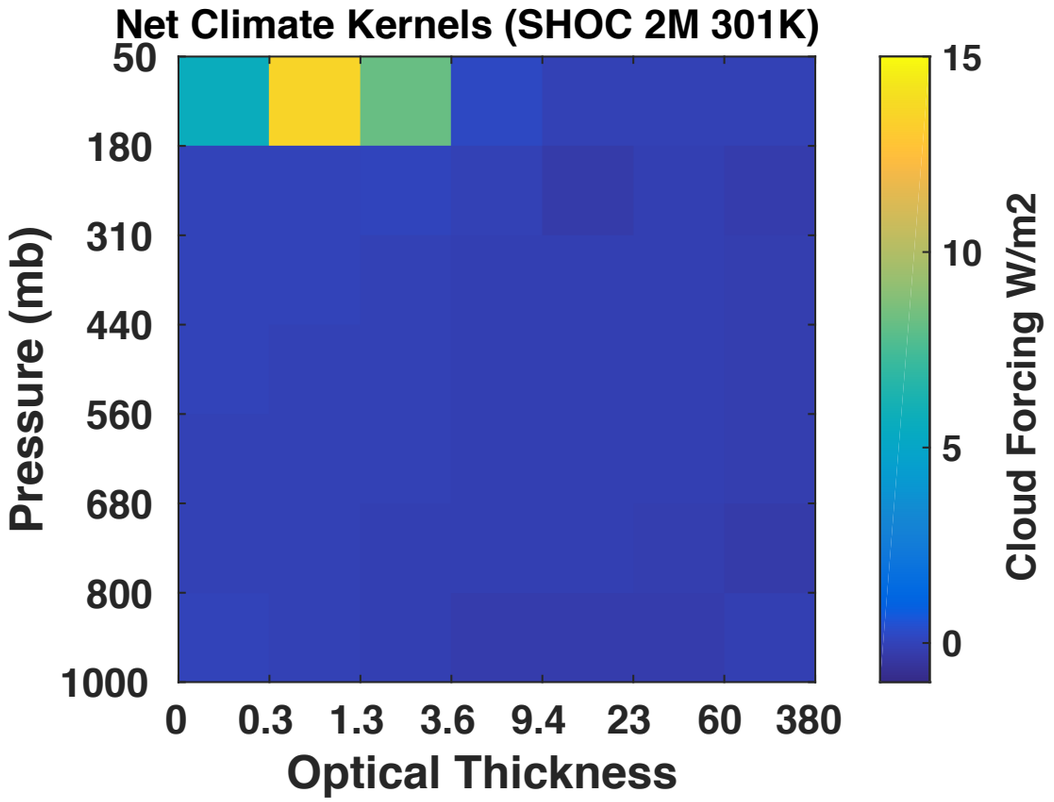


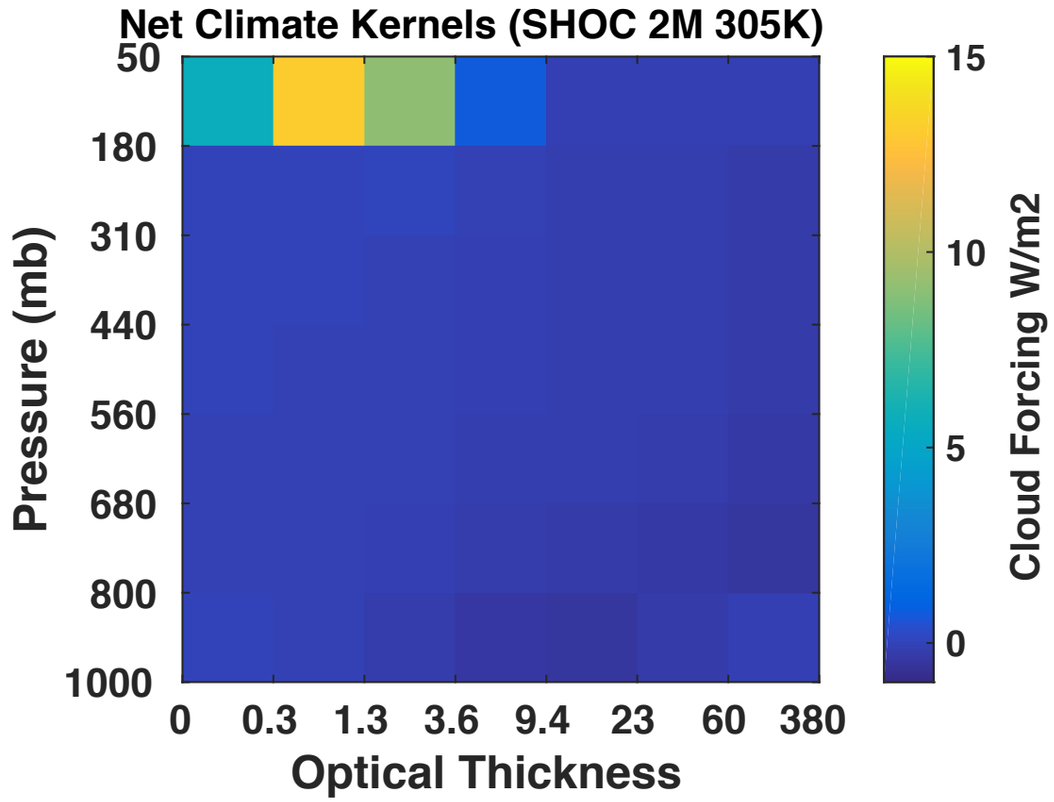






Net Kernel Fluxes





Plotting issue: Not sure how to do log plots when negative values exist too.

What's next?
305K-301K plots like this for cloud fraction and kernel derived cloud forcing.