

# **SSF and ES8 Cloud Comparisons in the Warm Pool and Tropics**

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# Description of Comparison

Compared only footprints existing on both subsetted Edition1 TRMM SSF and Edition2 TRMM ES8

- Subsetted SSF contains every 3<sup>rd</sup> footprint when Viewing Zenith  $< 45^\circ$  and every footprint at larger Viewing Zenith angles

Cloud category based on ES8 Scene ID and SSF ADM type

- Clr: 0 - 5% cloudy
- PC: 5 - 50% cloudy
- MC: 50 - 95% cloudy
- OV: 95 - 100% cloudy

All screening done using SSF parameter values

- Surface type based on 10 minute IGBP map
- All viewing angles are located at the surface

Expect there to be differences between MLE and imager

- Richard Green has discussed them at previous meetings
- This discussion highlights how differences between MLE and imager vary temporally and regionally

# Scene Type Comparison

**January 1998, Daytime Ocean**

<b>Warm Pool % Tropics%</b>		MLE (ES8)				All Scenes	Cloud Amt.
		Clr	PC	MC	OV		
I M A G E R  (SSF)	Clr	28	1	0	0	29	46 59
		18	2	0	0	20	
	PC	21	4	1	0	26	
		13	8	0	0	21	
MC	5	16	3	0	24		
	2	15	3	0	20		
OV	1	10	8	2	21		
	0	8	18	13	39		
All Scenes		55 33	31 33	12 21	2 13		
Cloud Amount		21 38					

**Solar Zenith: 0° to 90°**  
**Viewing Zenith: 0° to 90°**  
**Ocean coverage: 100%**  
**Skin Temperature: 175K to 375K**

**Warm Pool**

**Latitude: 5° to 25° North**

**Longitude: 130° to 180° East**

**Tropics**

**Latitude: 30° North to 30° South**

**Longitude: 180° East to 180° West**

# Scene Type Comparison

## April 1998, Daytime Ocean

Warm Pool % Tropics%		MLE (ES8)				All Scenes	Cloud Amt.
		Clr	PC	MC	OV		
I M A G E R  (SSF)	Clr	27	1	0	0	28	39 54
		20	2	0	0	22	
	PC	29	10	0	0	39	
		15	9	0	0	24	
MC	4	14	2	0	20		
	2	15	4	0	21		
OV	0	6	5	2	13		
	0	8	14	11	33		
All Scenes		60	31	7	2		
		37	34	18	11		
Cloud Amount		17					
		34					

## August 1998, Daytime Ocean

Warm Pool % Tropics%		MLE (ES8)				All Scenes	Cloud Amt.
		Clr	PC	MC	OV		
I M A G E R  (SSF)	Clr	16	2	0	0	18	54 58
		17	2	0	0	19	
	PC	16	14	1	0	31	
		13	10	1	0	24	
MC	1	10	5	1	17		
	2	14	4	0	20		
OV	0	2	12	20	34		
	0	8	16	13	37		
All Scenes		31	28	18	21		
		32	34	21	13		
Cloud Amount		42					
		38					

# Observations

No large temporal change in Tropics for MLE or imager

- Imager has factor of 3 more overcast than MLE
- Imager has factor of 1/3 less clear than MLE

Huge temporal differences in Warm Pool

- MLE has strong variation between Jan/Apr and Aug
- In August, Imager and MLE look more like Tropics
- Jan/Apr have high frequency of MLE clear
- Overall MLE cloud amount factor of 2 higher in August than in Jan/Apr
- Imager and MLE have more clear and less overcast in Jan/Apr than in August

SST changing in Warm Pool

**SSF Skin Temperature in Warm Pool**

	Minimum SST	Maximum SST	Mean SST
January 1998	295.7K	302.5K	300.2K
April 1998	295.4K	302.6K	299.6K
August 1998	299.8K	304.3K	302.3K

During the El Nino, there is more clear and less overcast in the Warm Pool.