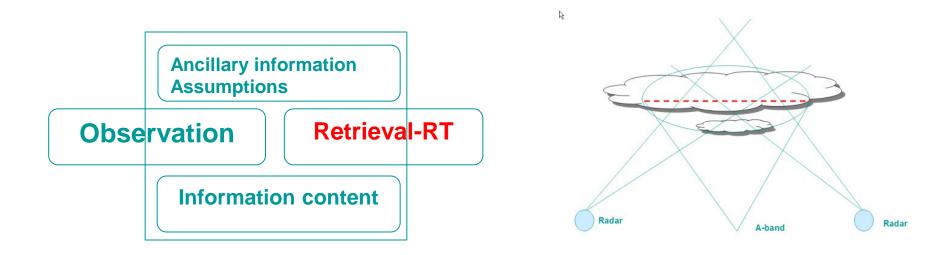
Synergetic Retrievals: A-band and spectral radiation closure:

Qilong Min ASRC, State University of New York at Albany

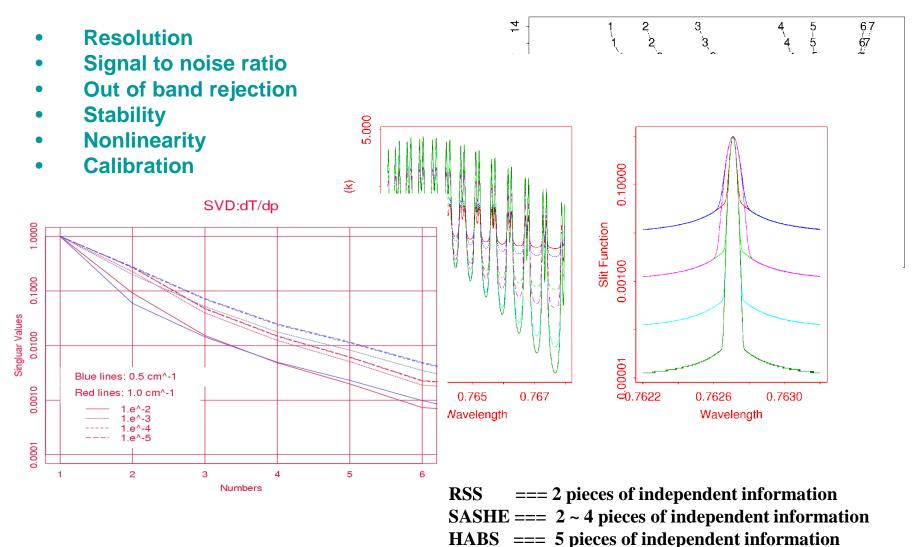


Measurement capability

- Active Sensors: Scanning radars/lidar → Vertical (horizontal) distributions
- SW radiometer, MWR & AERI: (Shortwave, longwave, Microwave)
- Spectral radiation: RSS, Shortwave Array Spectroradiometer (SASHE), HABS

Information content and instrument specifications

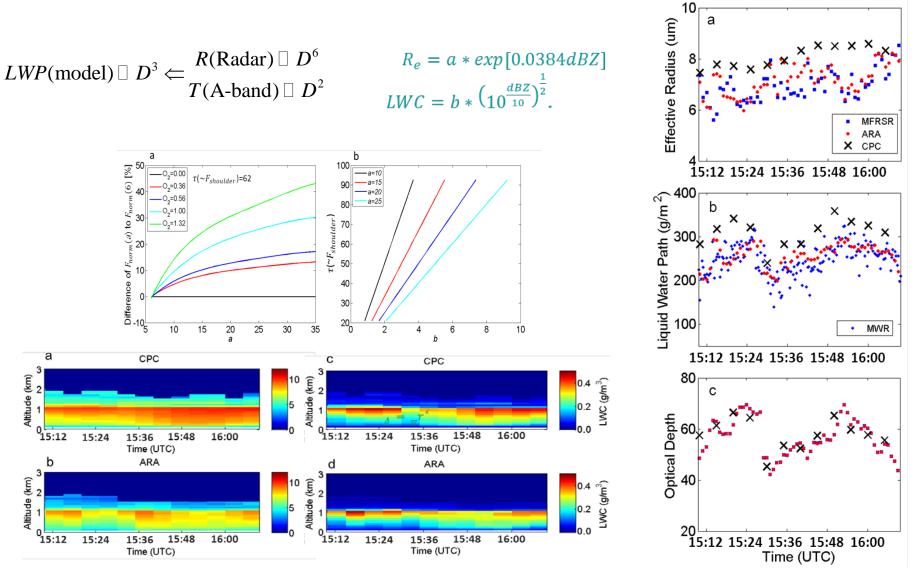
Instrument characteristics:



Oxygen A-band measurements and applications:

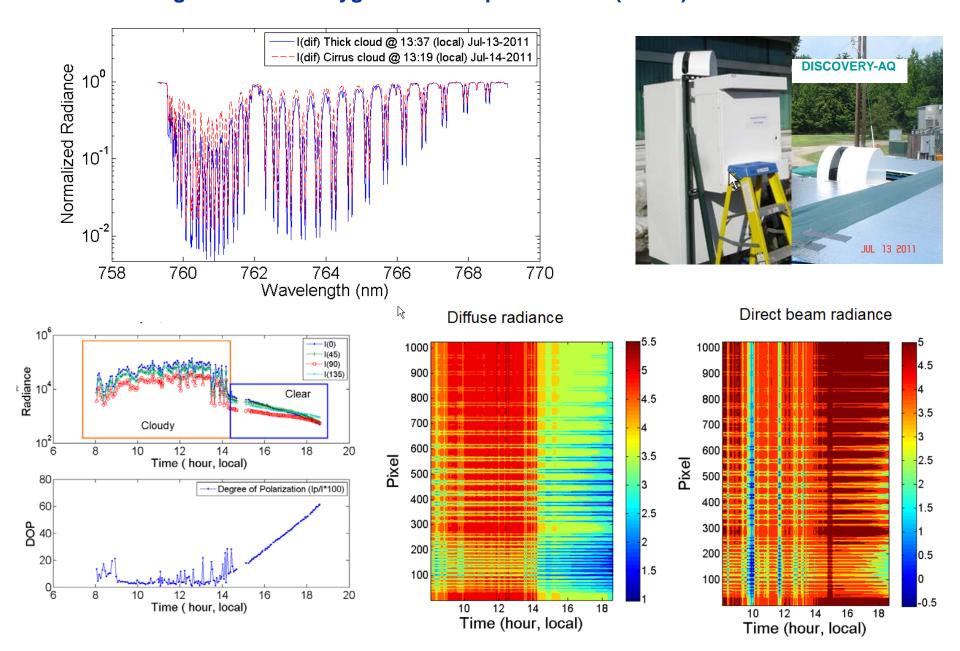
Synergetic retrievals of cloud optical properties from Radar

> better constraints on cloud drop size distribution



Comparison of Radar (CPC, Mace) and Spectrometer-Radar (ASR)

Oxygen A-band measurements and applications: High resolution oxygen A-band spectrometer (HABS)



MFRSR cloud/aerosol retrievals and applications



- The retrieval algorithm of cloud optical depth and effective radius from MFRSR diffuse radiation has been implemented as ARM VAP----MFRSRCLDOD1MIN.VAP
- Entire package, including cloud fraction and optical depth of thin clouds, can be implemented as or updated into ARM VAP
- MFRSR measurements, combined with other passive and active measurements at six fixed ARM sites: SGP, Darwin, Manus, Nauru, Barrow, and Atqasuk)
- Also at AMF field campaigns (PT-Reyer, Azores, Steamboat Springs)

Climatology of aerosol and cloud optical properties at ACRF TWP sites in the tropical warm pool region					
Qilong Min, Bangshen Yin, Siwei Li, Rui Li, and Minzheng Duan Atmospheric Science Research Center, State University of New York, Albany, NY, USA					
Aerosol Interannual Variation:		Introduction		Diurnal Variation:	
Sites and Meteorology:		 Climatology of aerosol and cloud properties, such as diurnal, seasonal, and interannual variability, is very useful for evaluation of climate models. Long-term MFRSR measurements, combined with other active and passive measurements, at the ACRF sites in the tropical warm pool region have been processed and analyzed for the climatology of aerosol and cloud optical properties. 			
		Aerosols and ENSO:	Clouds and ENSO:	Consequences	A TANKA A TANANA
Cloud Interannual Variation:					
				Aerosol-cloud interaction:	
				None 1	
		Aerosols and MJO: Clouds and MJO:			
Anne Frankriker				Conclusion: > Aerosols at the Nauru site exhibit background oceanic characteristics; while aerosols at the Darwin site show strong	
	E-ININ	Aerosol and Cloud Seasonal Variations:		There are no obvious trends of aerosol loading for past decades at all three sites. The annual or seasonal variation of aerosols is closely linked with Indo-Australian monsoons.	
		1 How	HANTHALING THE TOTAL	There are significant diurnal cycl exponent at the Darwin site. The	re are no significant diurnal
				 variations of aerosol loading at th At the two oceanic sites, the met with MJO events modulate aeros 	eorological changes associated
Hanse Hanse			HANNING ENGLISH	There are weak dependence of I MJO on cloud properties at the I	NSO and no apparent impact of arwin site.
	Clouds and PDO:		HARRING FUTURE	The cloud related properties at the significantly correlated with PDO provide the properties of the provide the provided of	index and the monthly anomaly
Aerosol s and Wind Speed			[] 人 陳秋林	 values of COD (global) and CF c The cloud properties at the Manu trends from 1998 to 2007 and de 	is site exhibit apparent increasing
Tam / Pamjar Am		A CONTRACT OF A	"minifield of the reader	Diurnal cycles of clouds at the D LWP, total COD, and thin COD o	arwin site have maximum values of ccur at near local noon. There is a
		Contact for all data (<u>qmin@albany.edu</u>)		 stronger diurnal cycle in the wet season than in the dry season. Diurnal variations of cloud property exhibits weak diurnal cycle at two oceanic sites, particularly at the Nauru site with typical maritime climate diurnal cycle pattern. 	