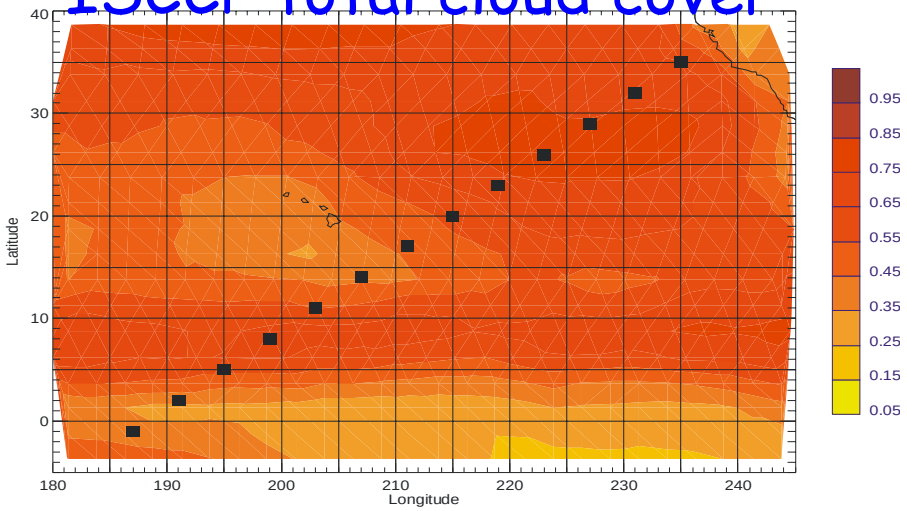
GPCI Motivation

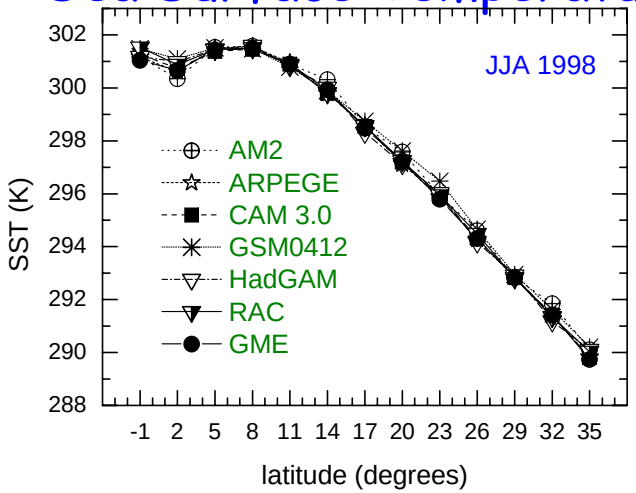
- To evaluate models and observations in the tropics and sub-tropics in terms of the atmospheric hydrologic cycle
- To include 3D NWP/Climate models in the GCSS framework (SCM/LES/CRM intercomparisons have limitations)
- To utilize a new generation of satellite datasets (e.g. AIRS, CloudSat, GPS)
- To create a database of models and observations for future studies of the tropics and sub-tropics
- To try to answer some questions: Can models reproduce the main properties of the diurnal cycle in the (sub)tropics? Can models and observations characterize the humidity structure of the (sub)tropical upper-troposphere?

GCSS Pacific Crossection Intercomparison

ISCCP total cloud cover



Sea Surface Temperature



GPCI is a working group of the GEWEX Cloud System Study (GCSS)

Models and data are analyzed along a Pacific Crossection from Stratocumulus, to Cumulus and to deep convection

Models: GFDL, NCAR, UKMO, JMA, MF, KNMI, DWD, NCEP, ECMWF, BMRC, NASA/GISS, UCSD, UQM, LMD, CMC, CSU, GKSS

Organization	Horizontal resolution	Vert. levels	Dynamics	Boundary Layer	Moist Conv.	Cloud param.
BMRC (Aus)	T63	60	Semi-Lag.	Ri-number	Mass-Flux	prog.water diag.fraction
CMC (Can)	0.5 X 0.5 (RM)	53	Semi-Lag.	TKE	Kain-Fr.	prog.water diag.fraction
CSU (US)						
CSU/MMF			Spectral		CRM	
DWD (Ger)	40 km^2	40	Eulerian+Semi-Lag.	MY2~Ri-number	Mass-flux M89	prog.water diag.frac.
ECHAM						
ECMWF	T399	62	spectral, Semi-Lag.	k(ri), kpp, EDMF	Mass-flux M89	prog. water and fraction
GFDL (US)	2.0 X 2.5	24		KP, entr.	RAS	prog. water and fraction
GKSS (Ger)	50 km^2 (RM)	32			Mass-flux M89	prog.water diag.frac.
JMA (Jap)	T106	40	spectral			
KNMI (Net)	0.5 X 0.5	40	Semi-Lag.	Ri-numb. KPP	Mass-flux M89	prog.water and fraction
LMD (Fra)						
MeteoFrance	T63	31	spectral, semi-Lag.	MY2.0	Mass-flux B85	Pdf-based, diag.fraction
NASA/GISS	2 X 2.5	32	gridpoint Eulerian	Cheng-Canuto	Mass-flux	Prog.water, diag.fraction
NCAR (US)	T42	26	Spectral	Dry KPP	Mass-flux	prog. water diag.fraction
NCEP (US)	T382	64	Spectral	Dry KPP	AS	Prog.water diag.fraction
UCSD (US)	180 km^2 (RM)	28	spectral	Dry KPP	RAS	diag.fraction (Slingo)
UKMO (UK)	1.25X1.875	38	gridpoint semi-Lag.	kpp, entr., regimes	Mass-flux	pdf-based (Smith)
UQM (Can)	180 km^2 (RM)	29	gridpoint semi-Lag.	Ri-number	Kain-Fr.	prog.water