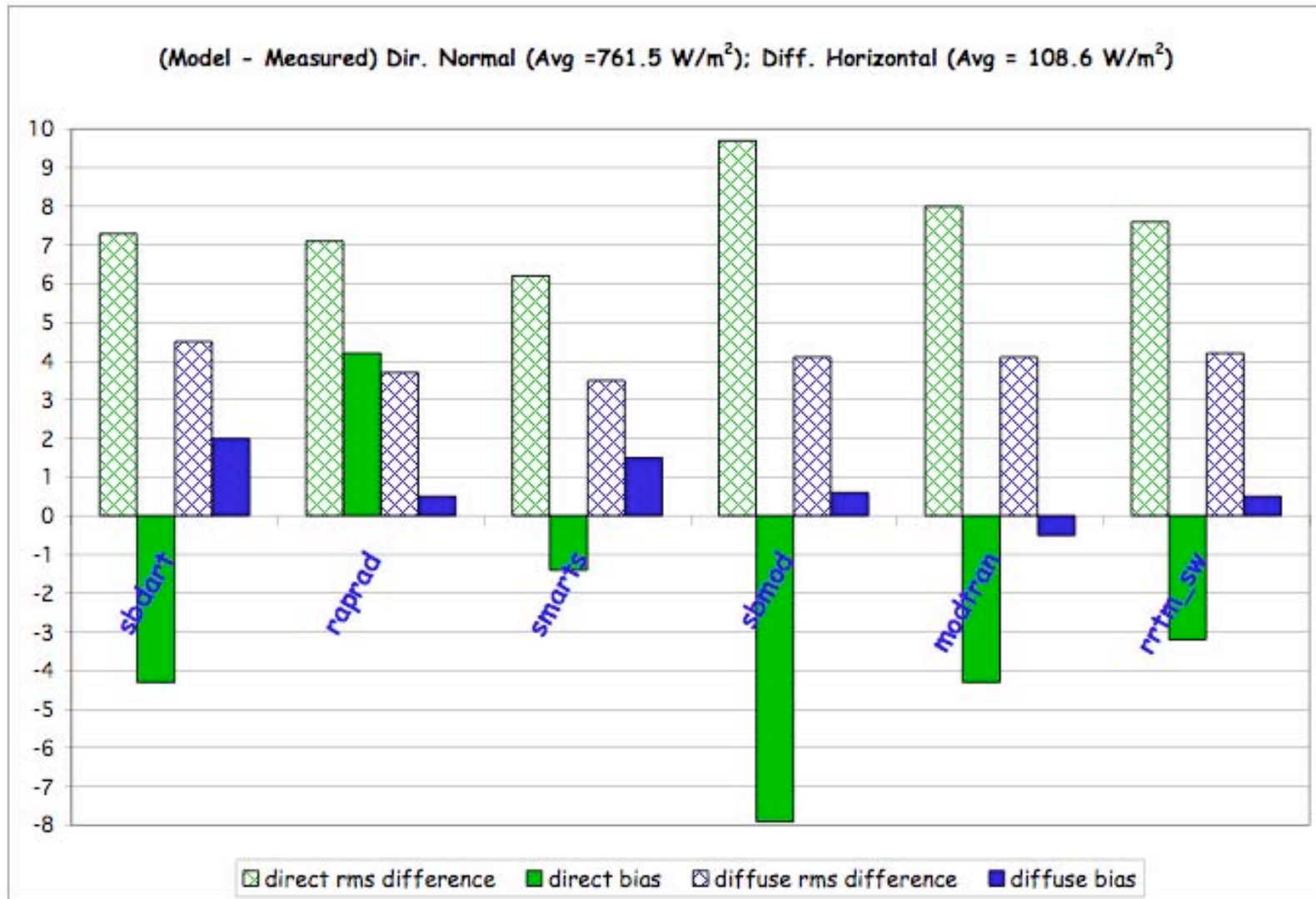


Comparison of RSS spectral measurements and RT model calculations for clear skies

J. Michalsky, G. Anderson, J. Delamere, P. Kiedron, E. Mlawer

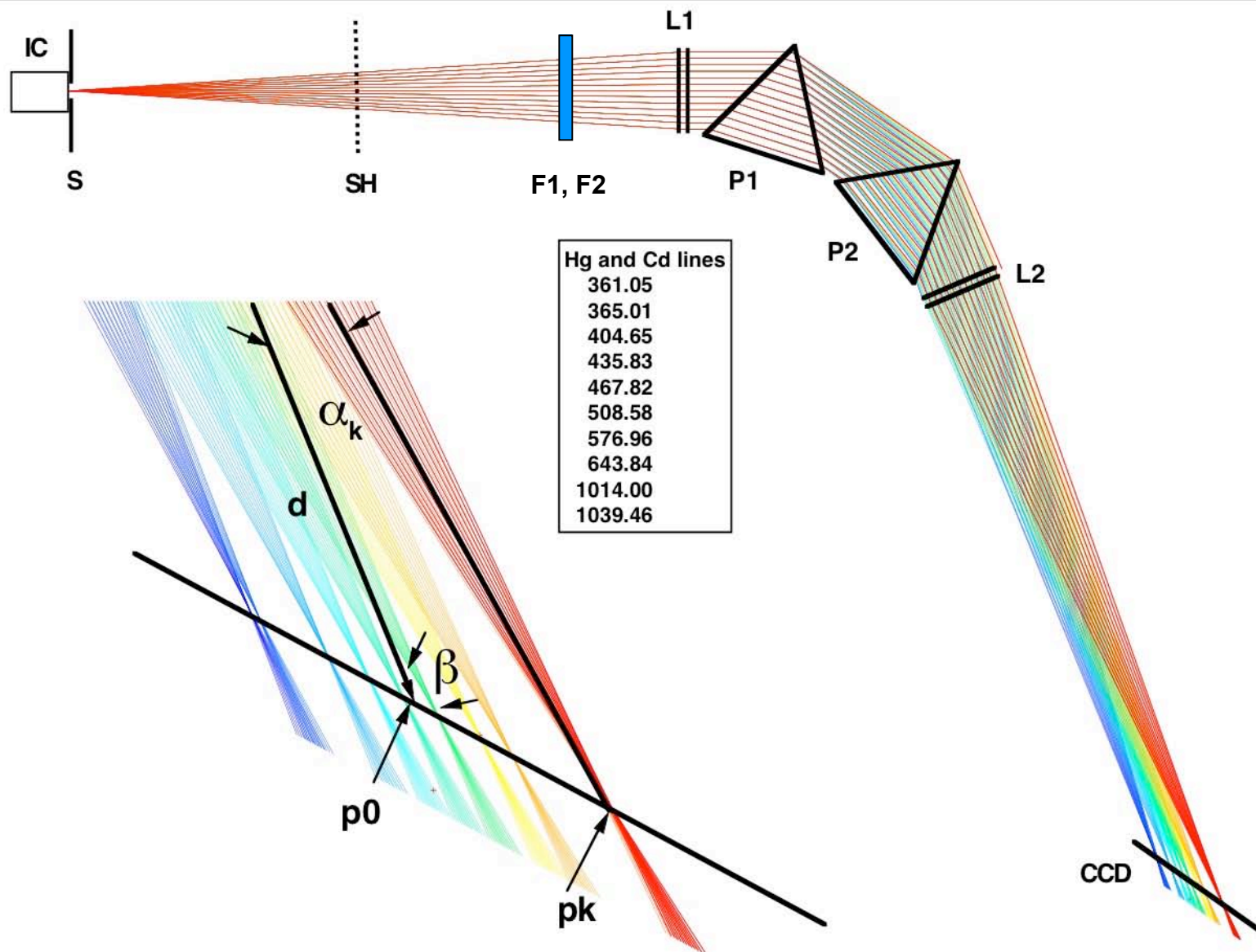
- Compare irradiance at moderate spectral resolution
- Rotating shadowband spectroradiometer (RSS)
- Why work in transmission
- Inputs to the models
- Six clear-sky comparisons
- Summarize results to this point

Broadband SW Model and Measurement Comparison Summary



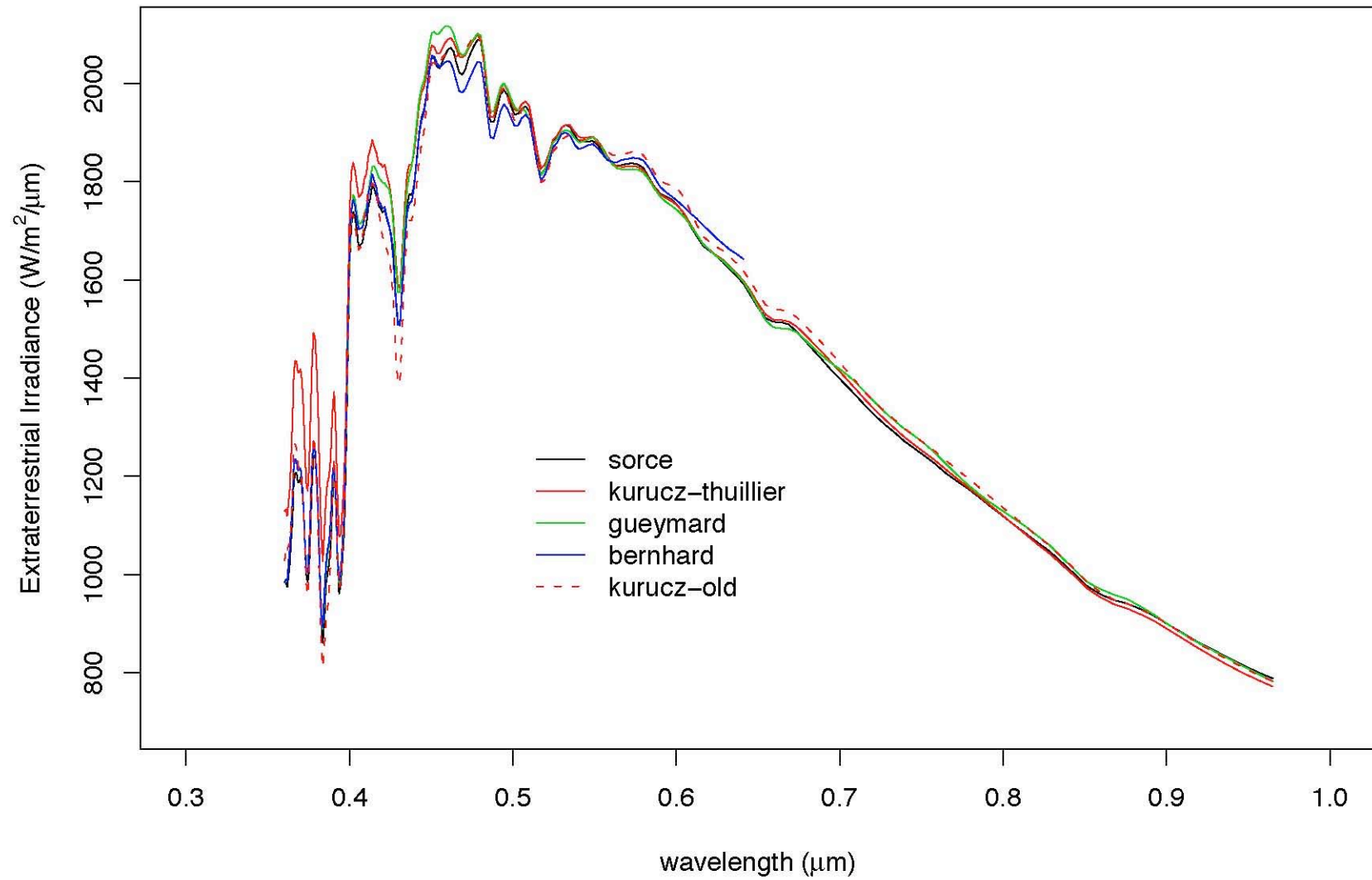
Rotating Shadowband Spectroradiometers
at ARM in Oklahoma, USA



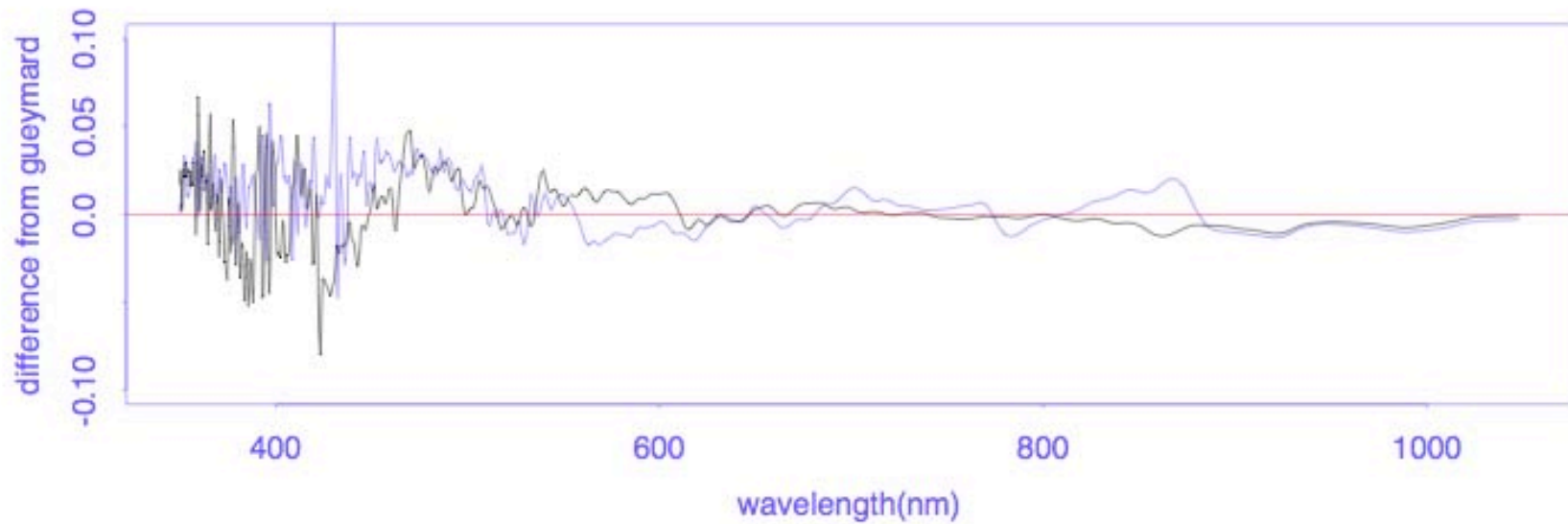
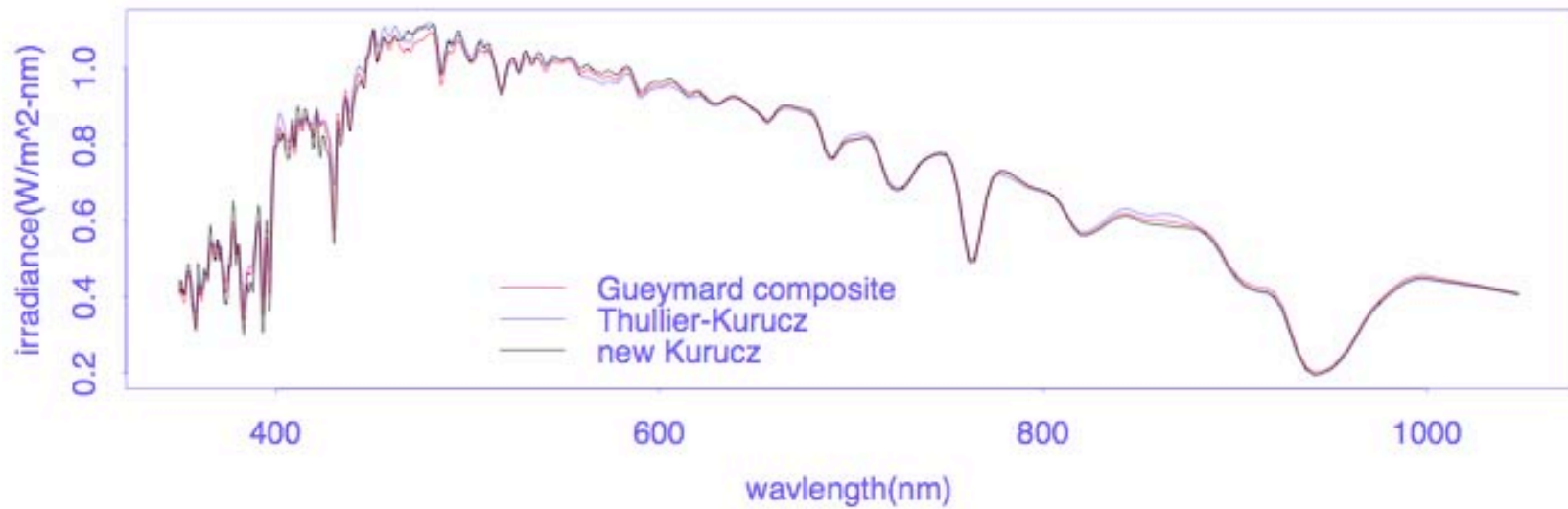


(0.25 to 4 nm fwhm)

ET Irradiance @ SORCE Resolution

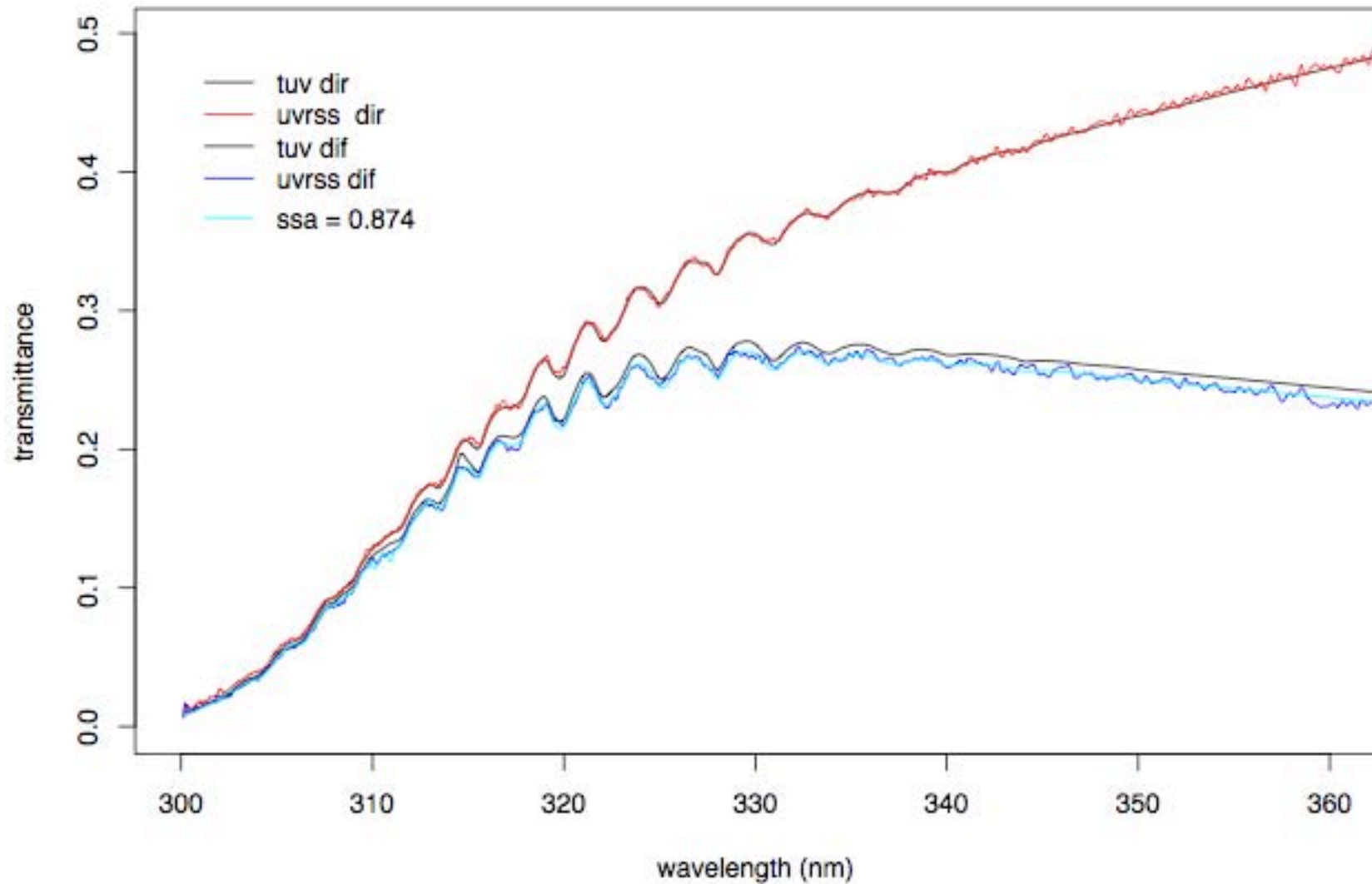


Some Differences Caused by ET Source Functions in SMARTS2



Results from Using UV-RSS in Transmission

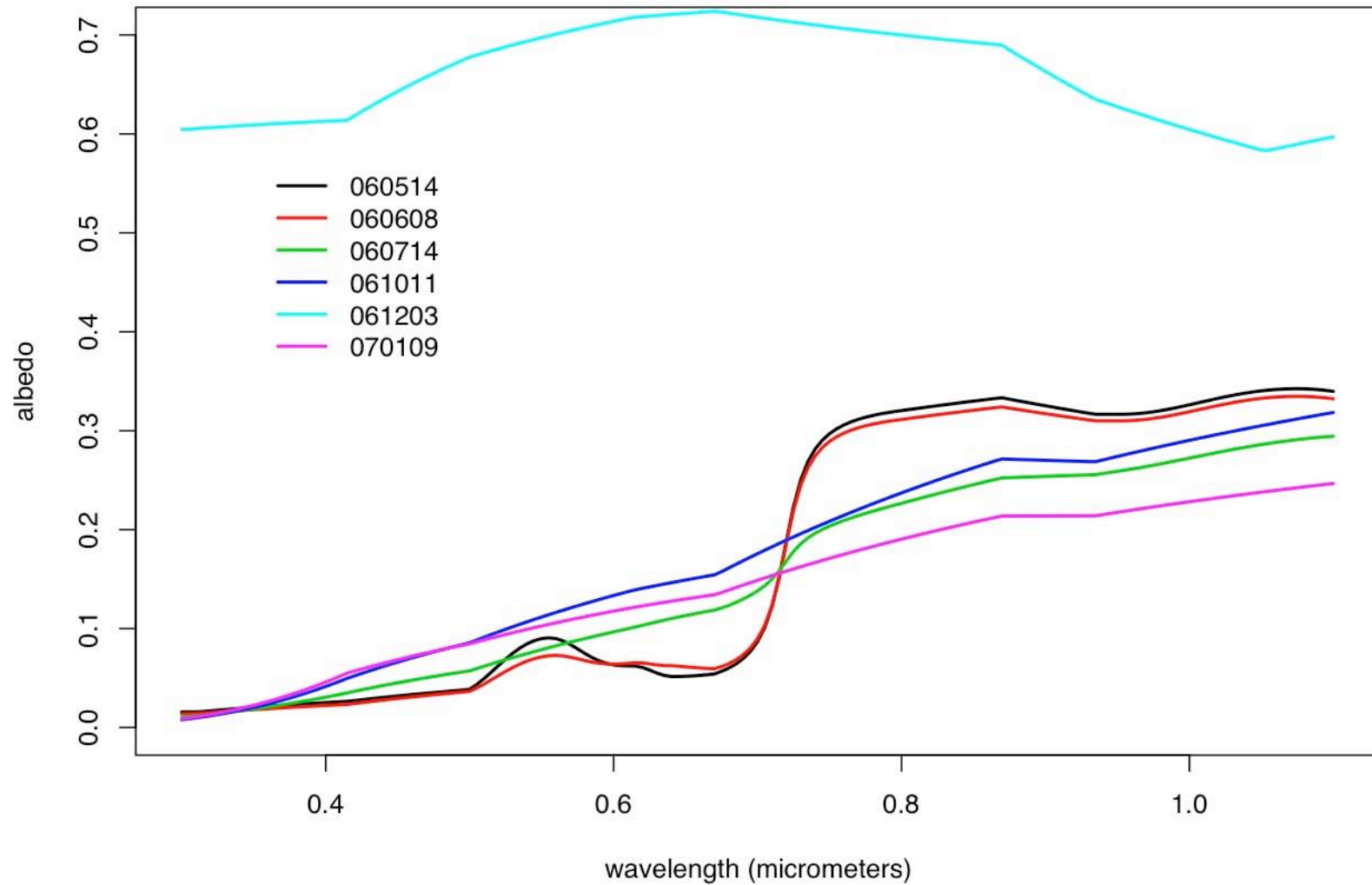
11 May 2003 @ 12:30; AOD(550 nm) = 0.084; SZA = 18.7 degs; SSA = 0.944



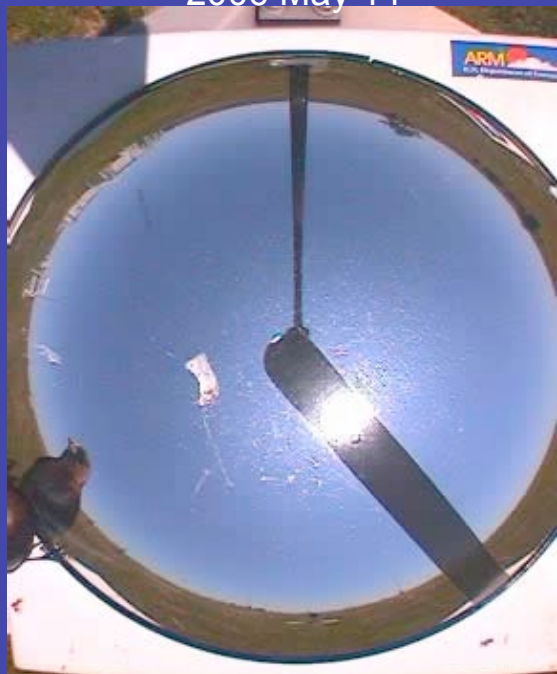
Date	Time (UT)	SZA	H2O (cm)	ozone (cm)	tau(500 nm)	alpha	ssa550	g550
20060514	134.728449	21.87	1.71	0.339	0.093	1.1	0.9	0.51
20060608	159.728426	18.88	2.26	0.311	0.083	1.23	0.92	0.49
20060714	195.728519	20.84	3.37	0.297	0.121	1.19	0.93	0.62
20061011	284.729259	45.1	1.27	0.288	0.045	1.73	0.81	0.48
20061203	337.72912	59.92	0.38	0.306	0.064	1.37	0.9	0.46
20070109	9.729167	60.75	0.65	0.289	0.034	0.67	0.87	0.52

Assigned ssa

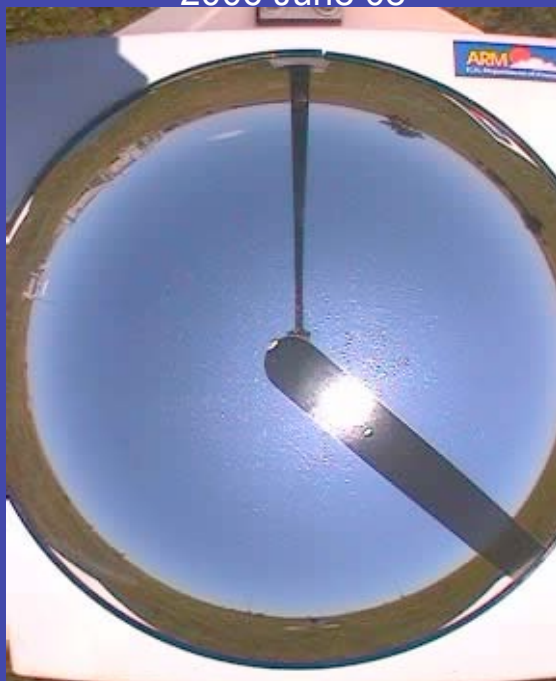
Albedos Based on Six Spectral Filter Measurements Above Crop and Pasture



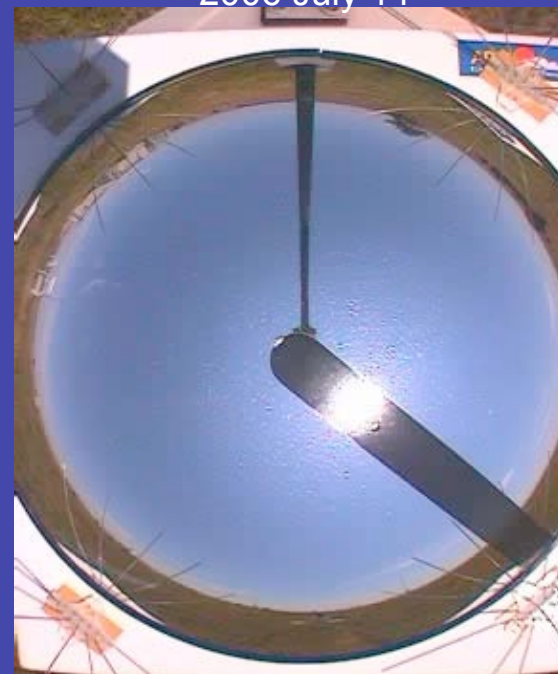
2006 May 14



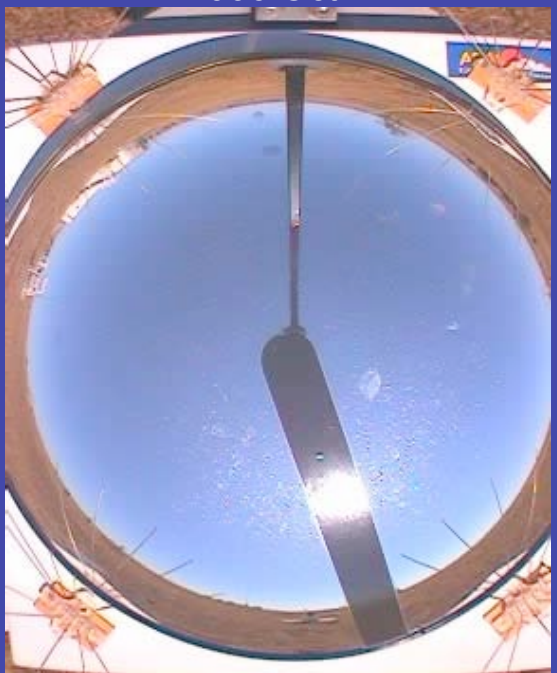
2006 June 08



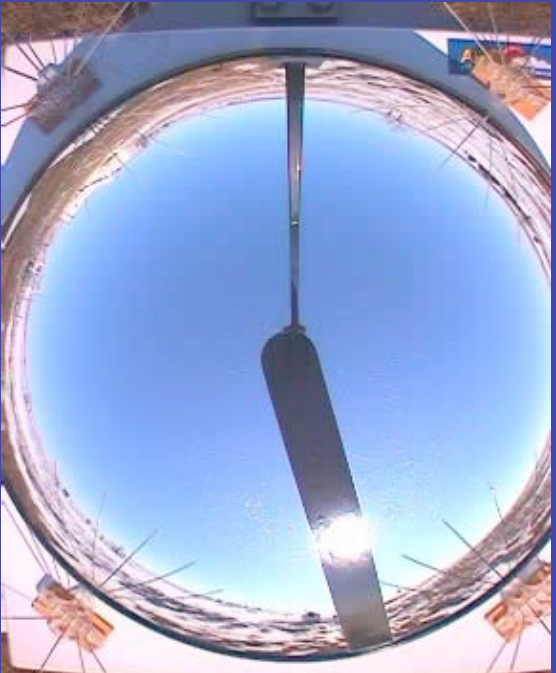
2006 July 14



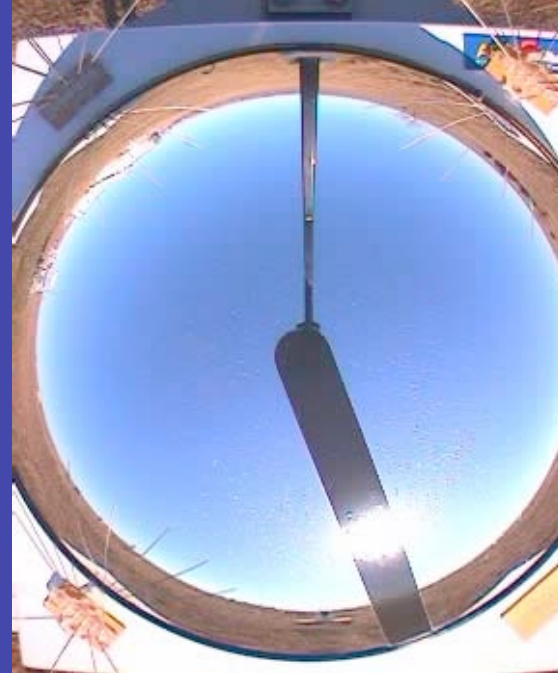
2006 Oct 11



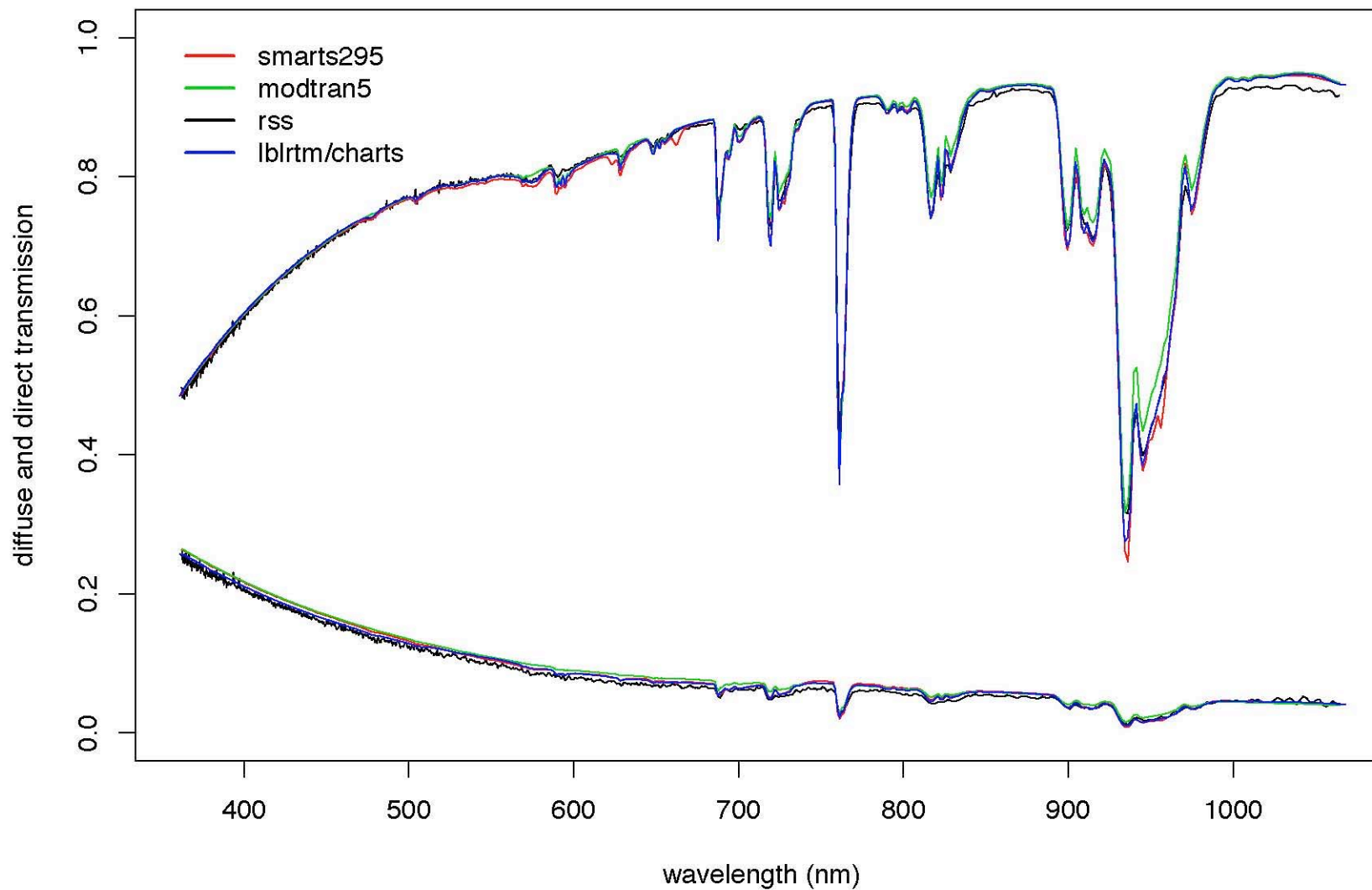
2006 Dec 03



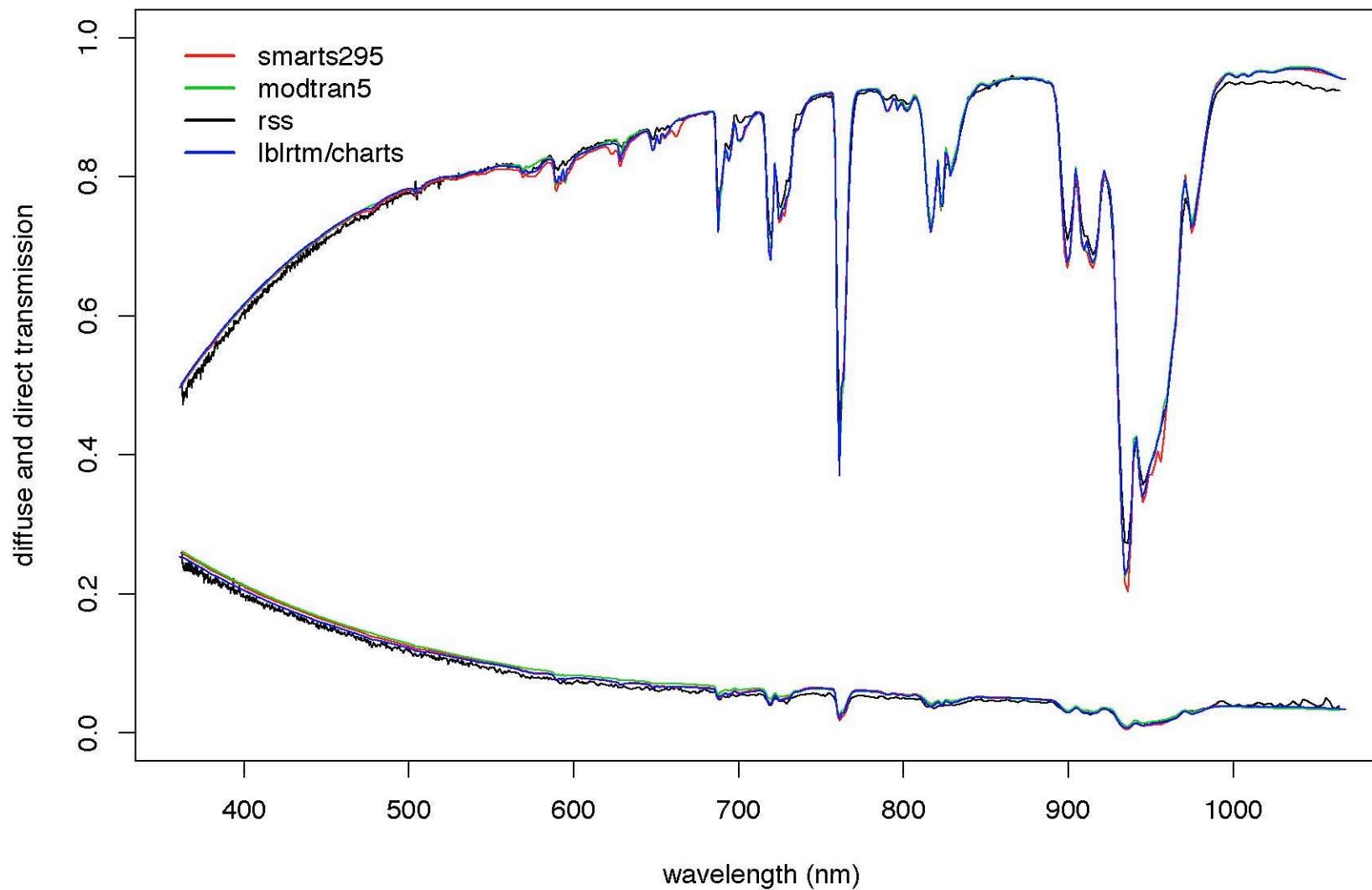
2007 Jan 09



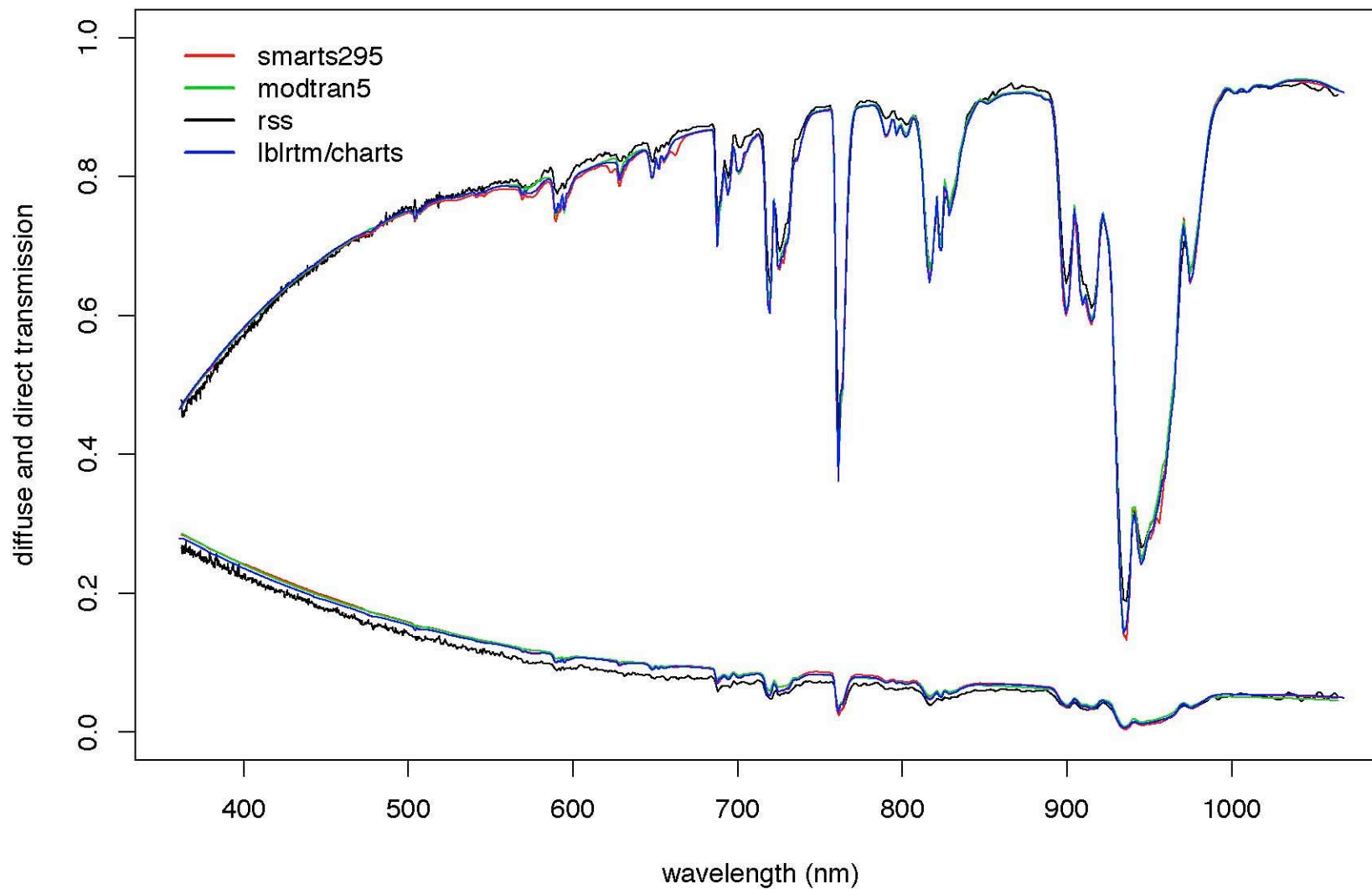
SGP20060514.1730, SZA = 21.87; H2O = 1.71 cm; TAU (500 NM) = 0.093



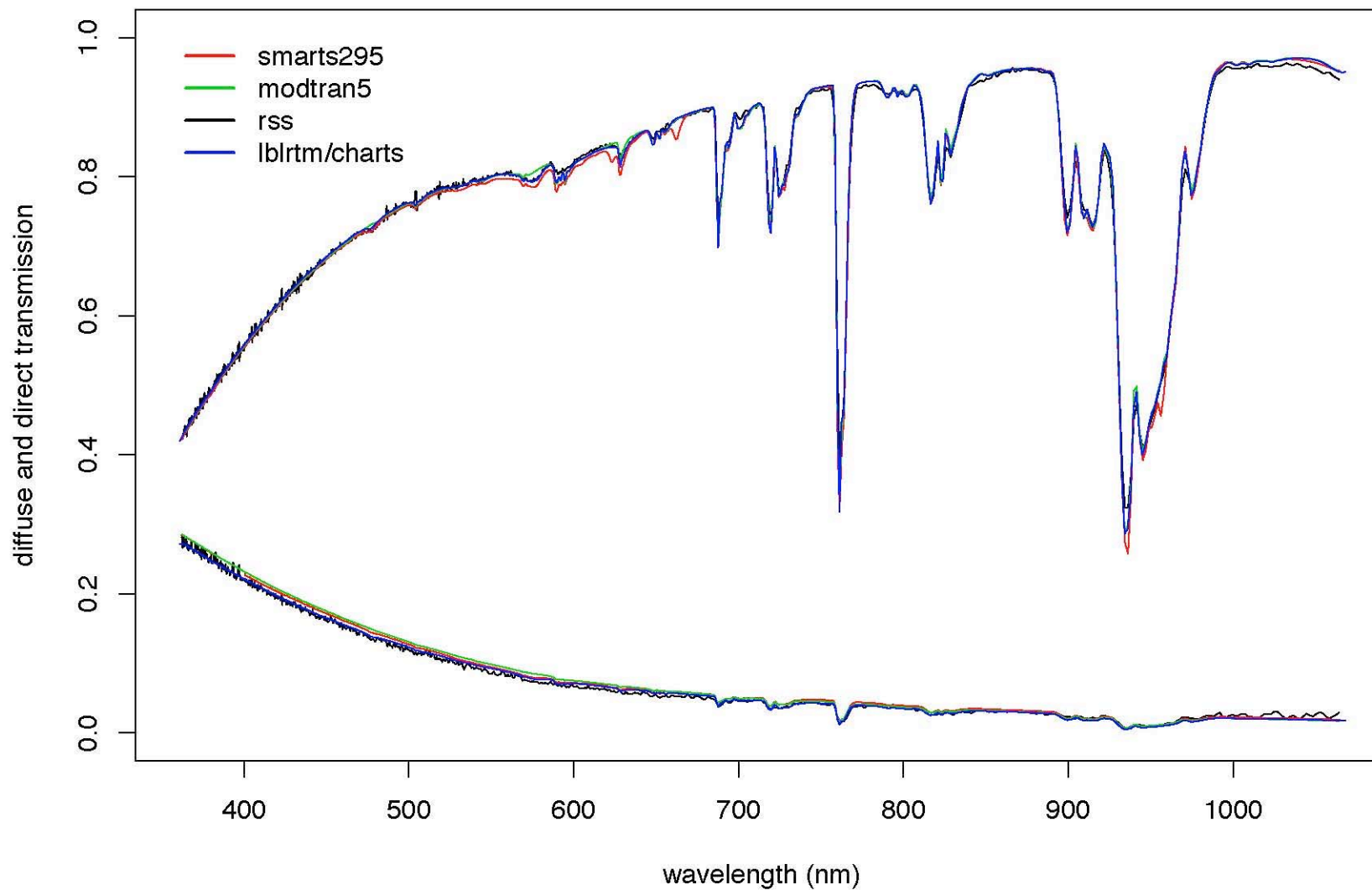
SGP20060608.1730, SZA = 18.88; H2O = 2.26 cm; TAU (500 NM) = 0.083



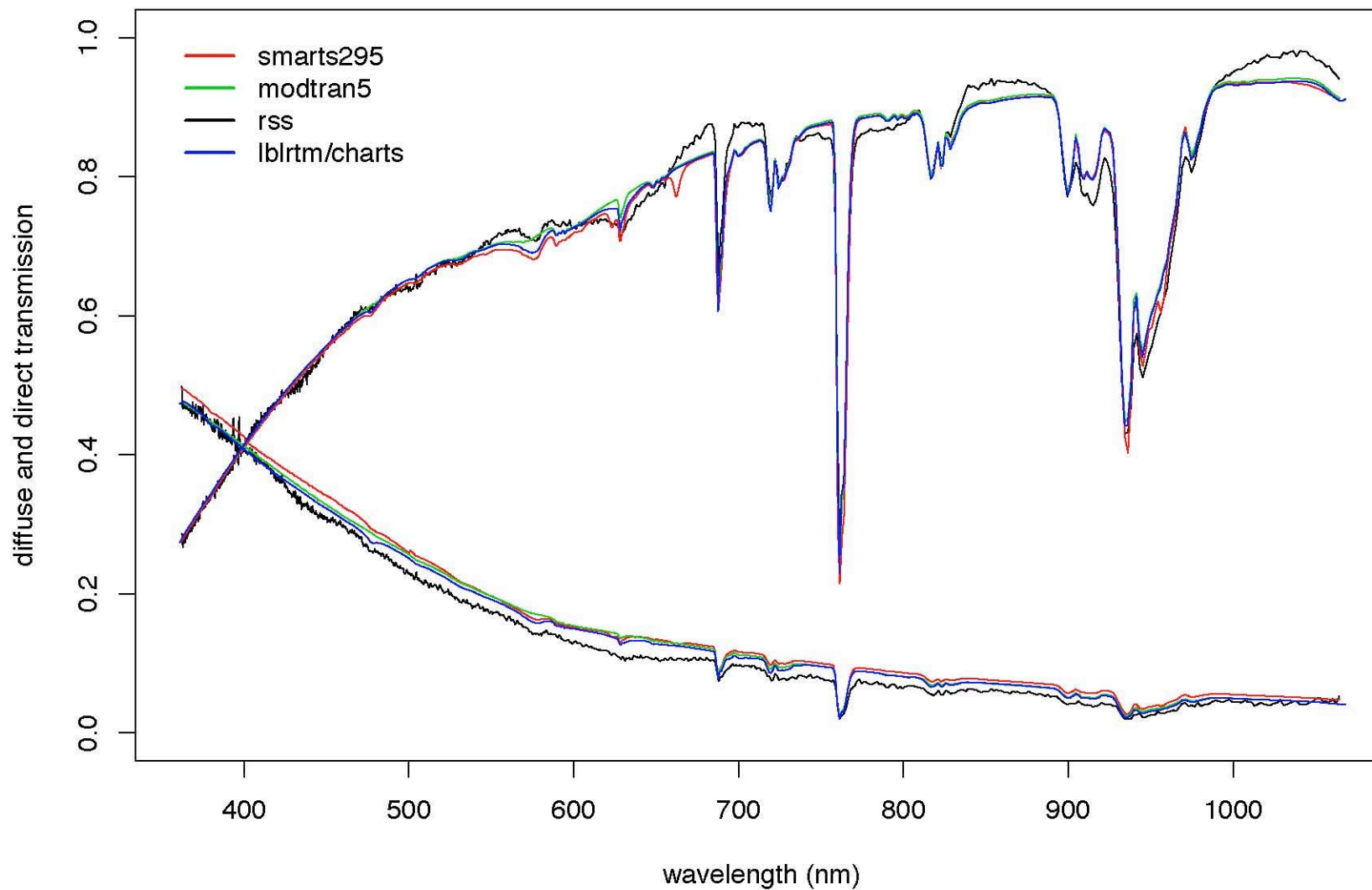
SGP20060714.1730, SZA = 20.84; H2O = 3.37 cm; TAU (500 NM) = 0.121



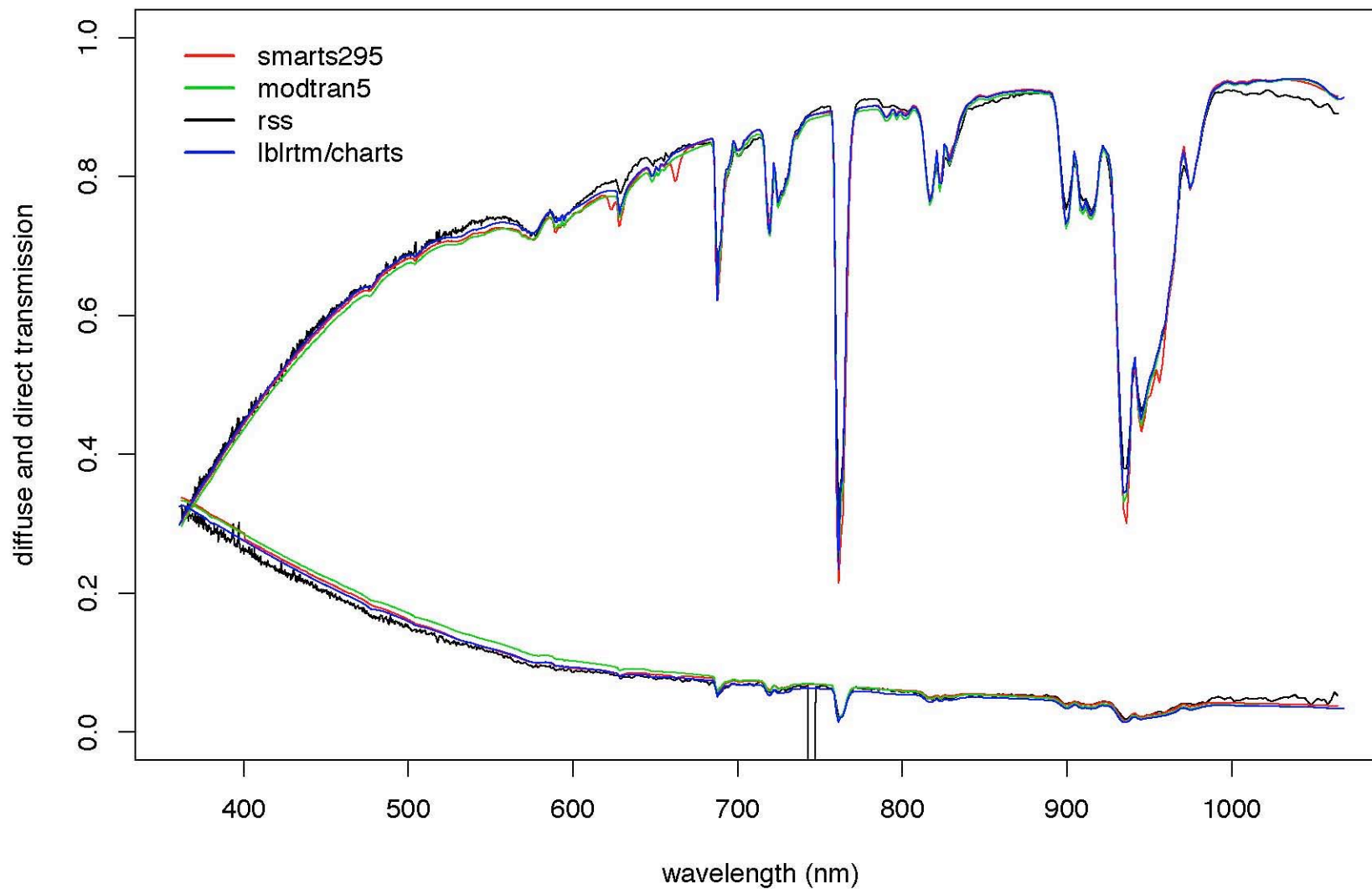
SGP20061011.1730, SZA = 45.10; H2O = 1.27 cm; TAU (500 NM) = 0.045



SGP20061203.1730, SZA = 59.92; H2O = 0.38 cm; TAU (500 NM) = 0.064



SGP20070109.1730, SZA = 60.75; H2O = 0.65 cm; TAU (500 NM) = 0.034



Summary to Date

- Would like to know of others' efforts to compare spectrally at these wavelengths
- Trying to refurbish the RSS for better stability
- Transmission is a viable approach for comparisons
- Blue-green diffuse is overestimated by models
- Some model modifications clearly warranted
- Coarse mode may not be represented well by simple Angstrom model; need more certain $ssa's(\lambda)$ and $g's(\lambda)$