



Current ACCP “aerosol” payload options

- Lidar – backscatter or HSRL
 - CALIOP copy
 - More sensitive backscatter lidar
 - HSRL ($2\beta+1\alpha$ or $3\beta+2\alpha$)
- Polarimeter
 - At least a half dozen potential instrument options, all capable
- Is this sufficient?
- Should other types of instruments be considered?

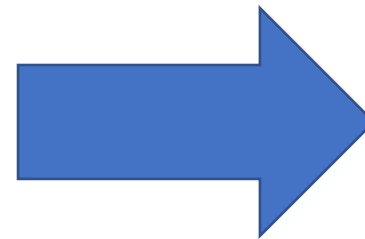
Current ACCP Polarimeter Summary

- all more advanced than Polder/3MI

Polarimeter	Used in:	Wavelengths			# angles	Radiometric accuracy	DOLP	Footprint (km)	Swath (km)
		#	# polarized	range (um)					
4a	8D, 9A	10	10	0.360-1.65	10 (60@670)	3%	0.5%	1	1130
4b	4B	10	10	0.360-1.65	10 (60@670)	3%	0.5%	1	1130
4c	1D 2C, 2D, 2E,2F	15	15	0.340-2.25	10 (60@670)	3%	0.5%	1	1130
6	8H	9	9	0.410-2.25	255	5%	0.2-0.5%	5.6	5.6
7	6A, 6B 7A, 7B	11	11	0.360-1.65	10 (60@670)	3%	0.5%	0.5	550
8	7E	12	11	0.360-2.25	10 (60@670)	3%	0.5%	0.5	550

Premise: advances come from new and improved variables

- More accurate variables
 - Spectral AOD (*passive*) → *useable Å over land*
 - Near-surface extinction (*lidar*)
 - Non-spherical AOD (*passive*)
 - Non-spherical extinction (*lidar*)
- New variables (*passive*)
 - Spectral aerosol absorption
 - Aerosol size parameters:
 - fine-mode/coarse-mode r_{eff}
 - Second moment of size
 - Complex index



Amount
Absorption
Size
Shape

New capabilities for
"aerosol typing"