

Agricultural Production Monitoring Break-out Session – February 11, 2009

Preamble:

- RS system needed for crop classification and yield estimation (focus on what is being currently used)
- Did not include meteorological systems

General Comments:

- Many of systems currently available are adequate for crop condition assessment, but many do not have spatial resolutions needed for field-level crop identification
- Need to keep in mind that users are interested in value-added products such as FAPAR, not reflectance/backscatter data
- need to use 2 resolutions together – level 1 – ag vs non-agr (could use coarser resolution)
- level 2 – crop specific (higher resolution)
- also need agronomic parameters, not only spectral information, in order to achieve good accuracies on crop information/classification

Level of Usage:

R=regional (sub-national)

C=country

G=global

Application

A = Crop Area

Y = Yield

Y = Yes, meets requirements

L = There are limitations

System	Level of Usage	Crop area (type) or yield	Coverage (swath)	Timeliness (revisit)	Spatial	Spectral	Accessible
DMC - Beijing-1	Same as AWiFS				32 m (Y)		
QuickBird	R (on sample basis)	A	L (sample only)	L	Y	L	L (must be programmed, cost)
RADARSAT-1	C, R	A	Y ScanSAR or Wide Swath for C; Standard for R	Y for crop id. L for crop condition with 24-day exact repeat	Y	L (one polarization)	L (cost)
RADARSAT-2	C, R	A	Y ScanSAR or Wide Swath for C; Standard for R	Y and Left and R looking improves revisit	Y	Y (quad-pol)	L (cost)
Envisat ASAR	C, R	A	Y	L (35-day repeat)	Y	L (2 polarizations only)	L (experimental; not operational access)
ALOS PALSAR	C, R	A	Y	L (46 day repeat)	Y	Y	L (difficult to access; fixed configuration and coverage schedules)
INSAT - AVHRR - CCD	Similar to SPOT VGT					CCD (narrow bands)	

	(CCD); AVHRR similar to NOAA						
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- coverage and temporal repeat is limited for sensors in the less than 30 m resolution range and in particular for very high resolution satellites (< 5 m)
- revisit for SAR is limited if need to have exact repeat angle (important for crop condition; more tolerance for crop area)
- spectral characteristics are limited for many sensors (many do not have SWIR – less important for crop area; but can be of value for yield)
- SAR with only 1 or 2 polarizations are limiting
- **Almost all sensors are limited in accessibility**
 - o Cost of data (many are commercial)
 - o Acquisitions must be programmed
 - o Some systems are science/experimental and do not deliver operational service
 - o Timely delivery of data can be an issue