Report of the NCAVEO VALERI Campaign, June 2006

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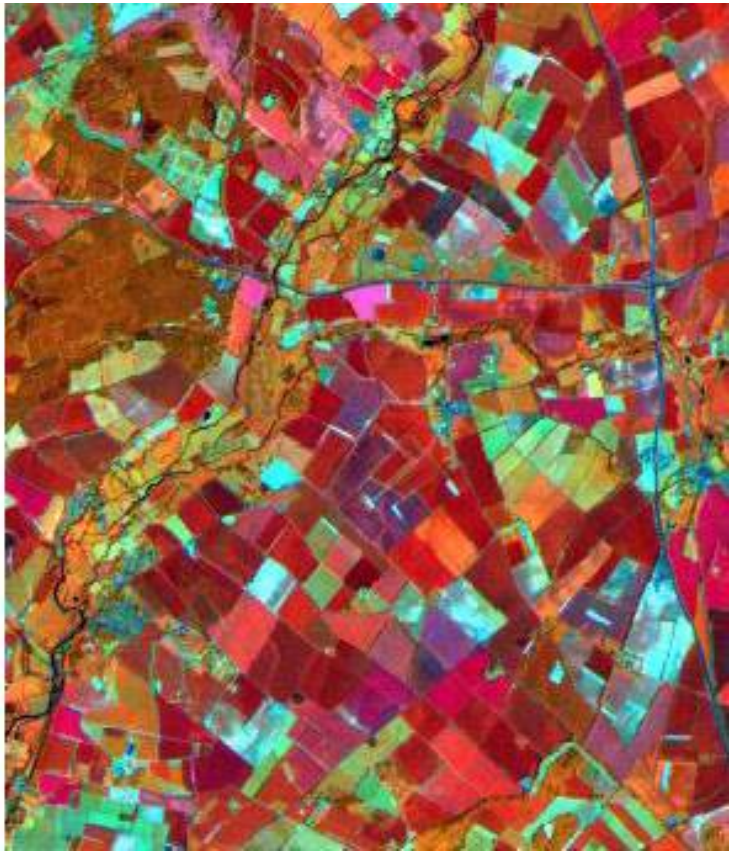
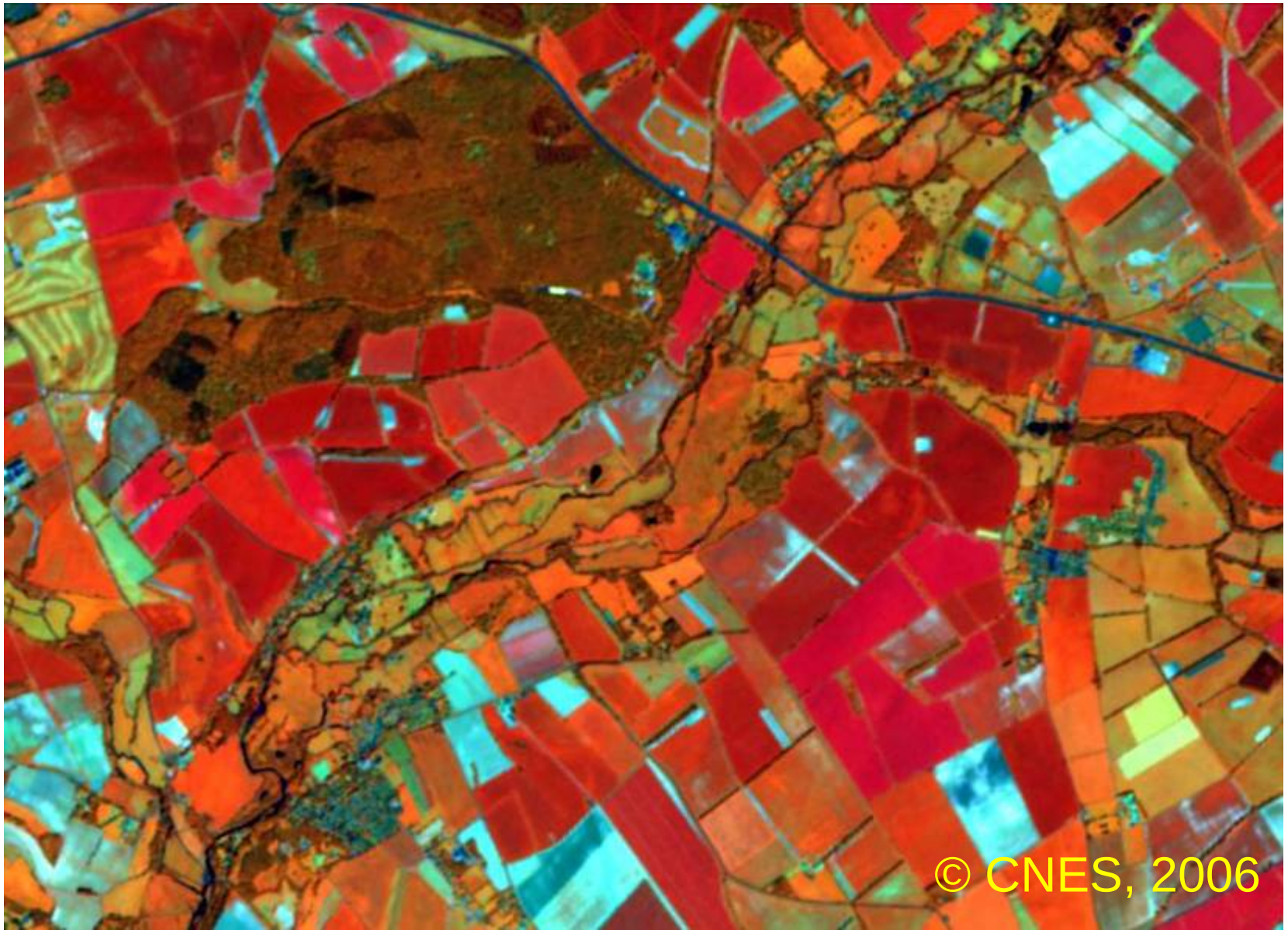
NCAVEO 2006 VALERI campaign



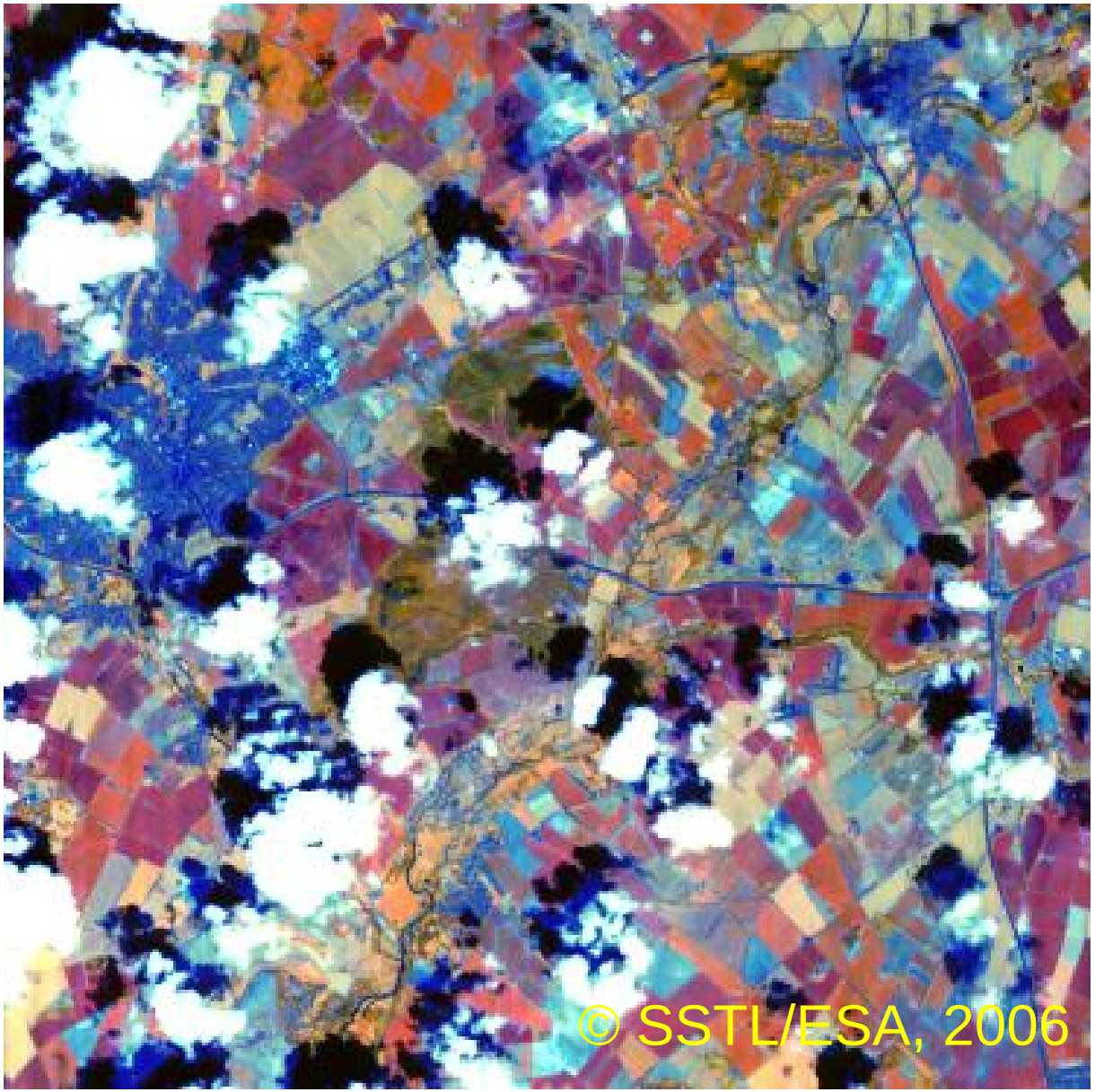
RS data successfully acquired

Date	Sensor/Platform
9th June	Digital multispectral air photography (Ordnance Survey)
10th Jun	SPOT-5 HRG
17th June	• CASI • LiDAR • Digital air photos • Aisa Hawk • CHRIS/PROBA
Multiple	DMC UK, Beijing-1, AlSat, Nigeria-1

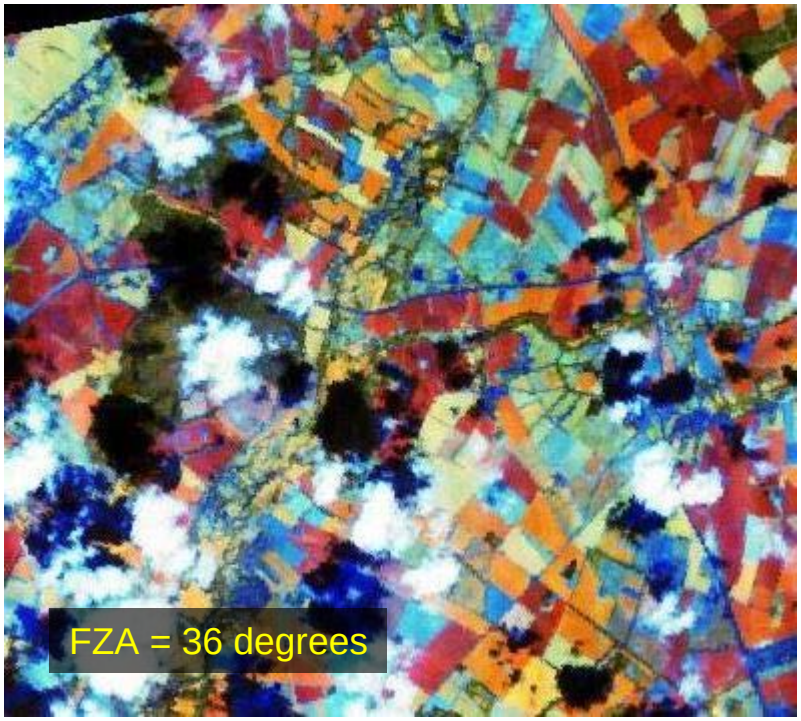
Chilbolton SPOT HRG 10th June 2006



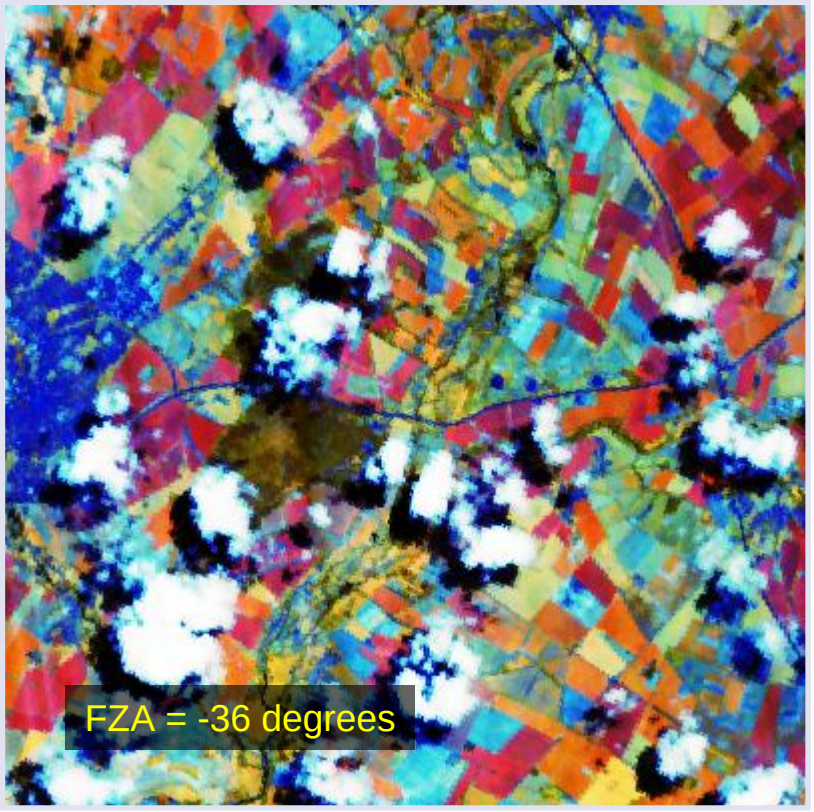
Chilbolton CHRIS/PROBA 17th June 2006



CHRIS/PROBA off-nadir 17th June 2006



FZA = 36 degrees.
Satellite north of test site.



FZA = -36 degrees.
Satellite south of test site.

Examples of ground data successfully acquired

Parameter	Method
Land cover	Field survey
Radiance calibration of seven spectroradiometers	NPL TSARS
Intercalibration of Spectralon reference panels	Field expt
Reflectance of tarps and VC targets	ASD FieldSpec and goniometer
LAI of wheat, barley, oats and oilseed rape	LAI-2000 and SunScan
Soil moisture	Dielectric properties
Site location	DGPS
Canopy gap fraction	Hemi photos and Laser profiler
Atmospheric data	Sunphotometry (AERONET site)

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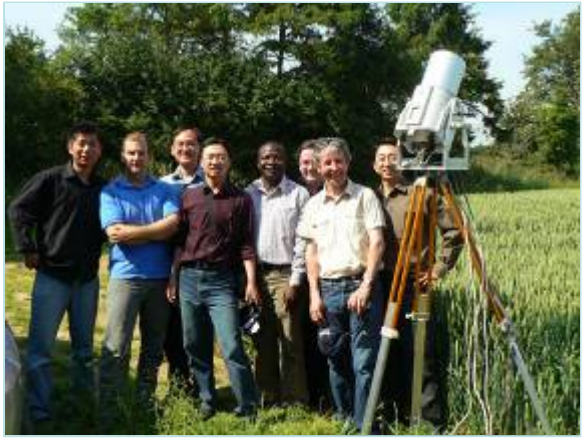

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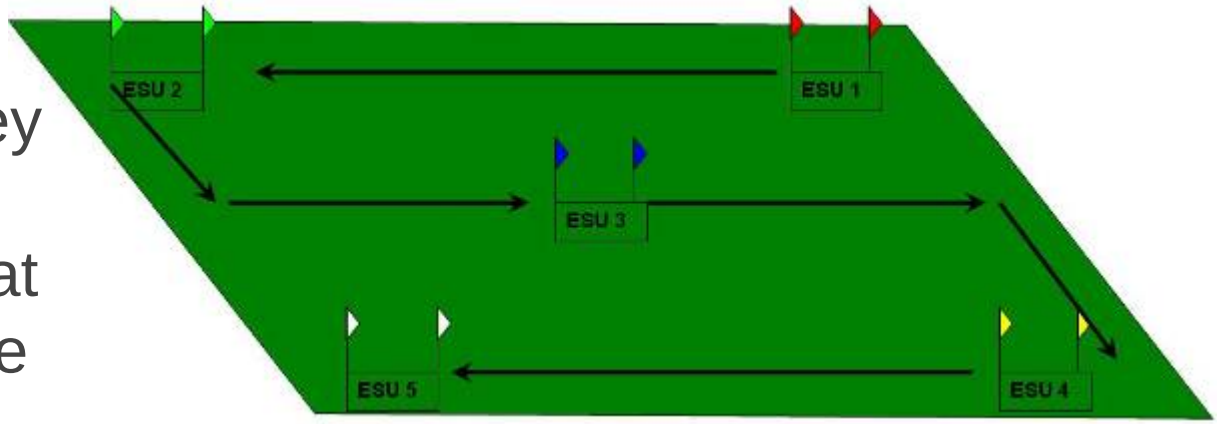
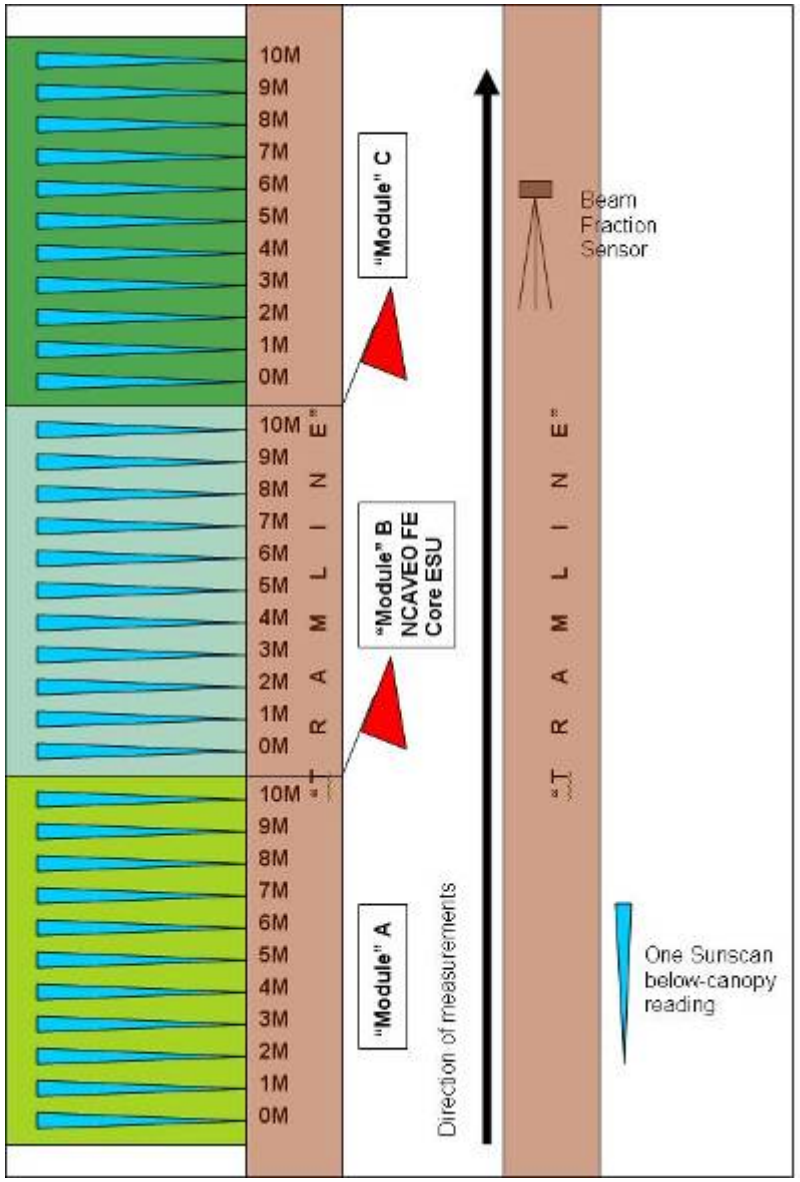
Biophysical sampling scheme

- Five ESUs in each field
- 10 m transects (LAI2000)
- 30 m transects (SunScan)

Spring barley
Winter oats
Winter wheat
Oilseed rape



LAI sampled with a SunScan (Pemberton, 2007)



	Mean LAI	Std Error
Oats	5.06	0.103
Wheat	3.72	0.102
Barley	1.90	0.078

- How many SunScan samples are needed to estimate LAI to a given level of accuracy?
- What is the optimum sample spacing?

LAI sampled with a SunScan (Pemberton, 2007)

Estimated using three methods:

- Conventional sampling theory (ignoring spatial autocorrelation).
- Leave-one-out method.
- Geostatistical method (semivariance).

Results from each method suggest that, 95% of the time, 15 samples, spaced 3 m apart would be sufficient to estimate LAI for these fields to within 0.3 units using the Delta-T SunScan instrument.