Ground measurement acquisition report for the VALERI site **Larose**

Sampled from 05/08/2003 to 08/08/2003

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People participating to the field experiment:

Fistname & Name	0rganization
Richard Fernandès	CCRS, Ontario, Canada
David Béal	INRA CSE, Avignon, France
Leblanc Sylvain	CCRS, Québec, Canada
Jujuan Li	CCRS, Ontario, Canada

Site coordinates

	Lat-Long WGS84 (Decimal Degree)		**UTM / WGS84** Zone North 18	
	Lat.	Long.	Easting	Northing
Upper left corner	45.394033	-75.236353	481500	5026751
Lower right corner	45.3671	-75.197931	484500	5023751
Centre	45.380567	-75.217136	483000	5025251

Ground control points

GPSLarose2003.xls contains different GCP's taken on the site (UTM WGS84 North 18): the first two points are T crossing roads, with one common road.

% GCP1	484034	5025375
% GCP2	483300	5024999

GPS system used: Garmin12CX device and Garmin e-Trex devices.
Typical uncertainty of GPS position: 6-7 m.

Description of the site and land cover

Category according to IGBP classification

Forest.

Comments on the land cover

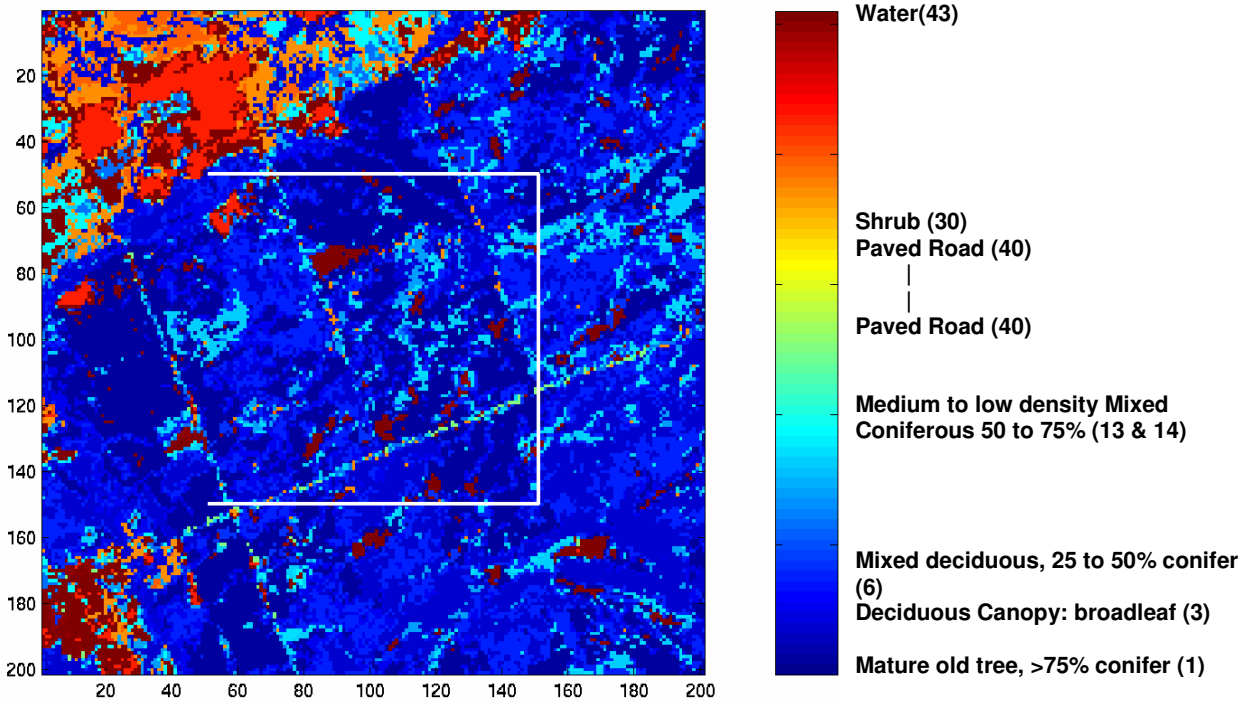
Boreal forest (conifer and deciduous trees) and wetland (grass and shrub).

Topography

The site is generally quite flat.

Land cover map

Numbers in the legend refer to the SILC Land Cover Map for Landsat-7 ETM+ classification. Explanations about that are in the file TMclass_SILC_metadataETM_1629 provided by the CCRS (warning: white square is not exactly VALERI Larose one).

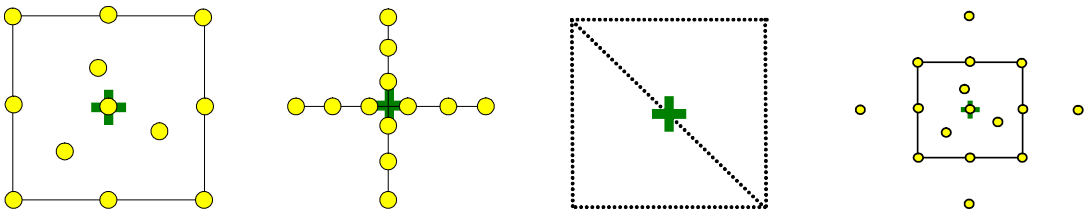


Spatial Sampling scheme

Sensors used for sampling the ESUs

	Method	Comments
☒	Hemispherical photographs	
☐	LAI2000	
☐	TRAC	
☐	Ceptometer	
☐	Direct measurements	
☐	Other	

Sampling strategy for the ESU



☐ ☐ ☐ ☒ (specify)

'd' strategy sampling contains 'a' strategy, we just add 4 extra picture points (out of 'a' square). Extra points are 10 m away from nearest neighbour point (like square points are 10 m away from centre point in horizontal or vertical direction) in horizontal or vertical direction. We decided to make 4 extra points because forest generally has bigger dimensions than agricultural field in term of plant size (Sylvain's idea).

Distribution of the Elementary sampling units

The crosses distribution with 4 extra points was used: 32 hemispherical photos are supposed to be taken over each ESU, 16 looking up (trees) and 16 looking down (understorey).

The high spatial resolution image

Satellite

Satellite used: SPOT2 HRVIR1
Level of processing: 2B SPOTVIEW Basic
Projection type: UTM 18 North/ WGS 84
Acquisition date: 19/08/2003

The image was provided by doing an ISIS command.
We order a 50 km circle centred on coordinates given on the following table.
The image was geo-referenced by SPOT image.

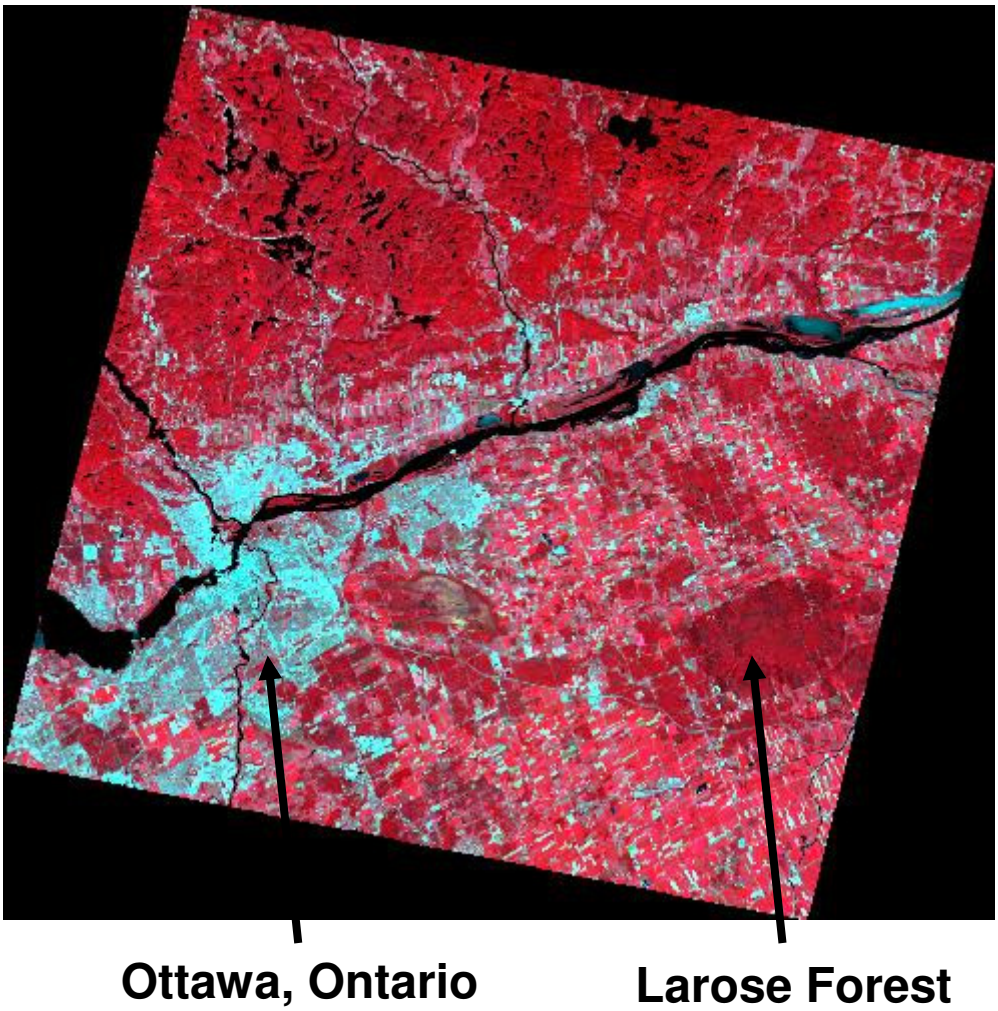
Georeferencing accuracy: 1 to 2 spot pixels.

3520*3809 pixels (20 by 20 m) image with 4 channels:

	Lat-Long WGS84 (Decimal Degree)		**UTM / WGS84** Zone 18 North (m)	
	Lat.	Long.	Easting	Northing
Upper left corner	45.8131988	-75.75124759		
Lower right corner	75.2884935	-75.92835774		
Site centre				

Characteristics of the entire SPOT image

Preview of the SPOT image:

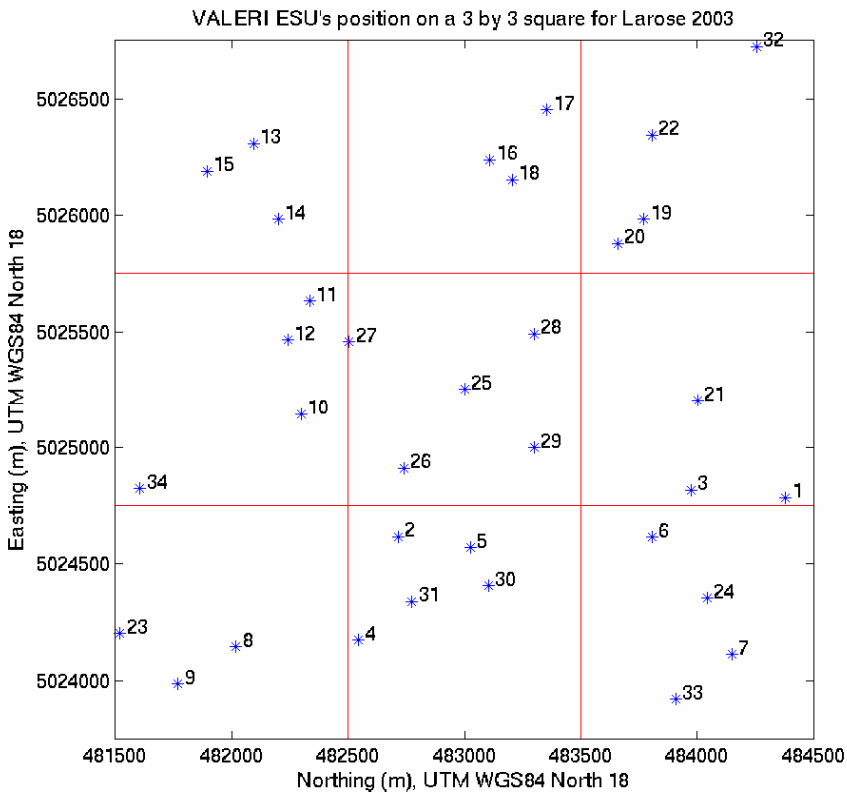


List of the ESUs

The GPSLarose2003.xls file contains the information for each ESU:

(ESU number 1 is done twice because for the first ESU we wanted to do an example)

ESU#	Esting(m)	Northing(m)	Note
1	484381	5024785	Mixed deciduous forest (conifer-maple)
2	482715	5024617	Young trees, maple. Low underwood.
3	483974	5024817	Grass, low shrubland, young maple (and a lot of road)
4	482545	5024172	Young dense maple trees, with hole
5	483026	5024569	High density conifer, poor low underwood.
6	483806	5024616	High dense deciduous forest, low poor underwood.
7	484149	5024111	High density deciduous trees, low poor underwood.
8	482018	5024145	High density conifer, sometimes mixed with deciduous, low underwood, dead trunk, water.
9	481769	5023985	High density deciduous trees, low dense underwood, often water trace and dead trunk.
10	482295	5025144	High dense deciduous trees (maple and other), low dense under wood.
11	482334	5025632	Various height but not low dense deciduous trees, 1-2 m high dense under wood.
12	482242	5025465	High dense deciduous, 1m dense under wood with water sometimes.
13	482095	5026309	High dense mixed deciduous and conifer, low poor underwood.
14	482200	5025984	Wetland, grass and sometimes shrub growing on the water surface.
15	481895	5026191	Not very high and dense mixed deciduous, water on 1m dense under wood.
16	483110	5026239	Wetland, 4m deciduous trees mixed to dense shrub.
17	483355	5026454	High density conifer, pretty dense under wood 1-2m high, with maple sometimes.
18	483206	5026153	Broadleaf shrub 3m, wetland, grass sometimes.
19	483772	5025983	High density and low density deciduous trees, high density and low density 1-m underwood.
20	483660	5025880	Mixed conifer deciduous, dominant conifer, high density, low density underwood.
21	484004	5025203	Mixed conifer deciduous, on a wetland (so variable density), dense mixed under wood.
22	483806	5026345	Wetland in deciduous trees, pretty dense, underwood of very dense shrub.
23	481520	5024203	High density mixed spruce aspen, variable density of underwood.
24	484044	5024353	Wetland, shrub and high shrub (2-3m), high density.
25	483000	5025251	Wetland, high density 1m shrub, there's grass and dead wood too.
26	482740	5024911	High density conifer, path through it, low under wood, variable density.
27	482505	5025456	High with high density young aspen, dense 1-2m underwood with maple.
28	483300	5025492	Wetland, 2-3m shrub, grass, dead wood, good density.
29	483300	5024999	High density conifer, low to 1m not very dense underwood.
30	483104	5024406	Centered ESU on the Road, deciduous trees, not dense of course, water and grass.
31	482775	5024339	ESU centered on the road, on side high density conifer and the other deciduous.
32	484255	5026726	Dense mature conifer, low poor underwood.
33	483908	5023920	High density conifer, not very dense underwood (path trough it) with maple growing to 15m.
34	481606	5024822	High density deciduous, dense 1-1.5m underwood.



Acknowledgements

Thanks to Richard who managed to find ESU's in this so nice forest.
Thanks to Sylvain who took half of pictures and brought his forest sampling experience.
Thanks to Jujuan Li from CCRS for its participation.
Thanks again to Richard and Sylvain and their so animated talks about work.
Thanks to Forest State guards to let us do the job.

Photo gallery

The photos illustrating the campaign are to be stored in the directory "photo gallery" and the labels should be indicated in the table above.

For each ESU a panoramic photo was taken, the photo name is the ESU_*number*_panorama.

#	File name	Comments
1	ESU_X_panorama.jpg	ESU number X panoramic photo
2	Little_friend.jpg	Little animal on the road (Sylvain)
3	warning_english.jpg	Warning message for Larose wildlife (English)
4	warning_french.jpg	Warning message for Larose wildlife (French)
5	lunch_near_Larose2_030807.jpg	Lunch near Larose forest on third day, food wasn't good
6	what_to_wear2.jpg	What to wear to sample Larose (end of campaign)
7	all_samplers.jpg	Full members of Larose campaign (end of campaign)
8	all_samplers_from_canada.jpg	Canadian members of Larose campaign (beginning of campaign)
9	what_to_wear.jpg	End of campaign

Additional comments

ESU number 1 is done twice because for the first ESU we wanted to do an example.
Problems with two cameras (the two working with 4 batteries):

- One hemispheric camera seemed not to work very good at the end of the campaign (zoom locked, only working in Manual mode, and to switched power off user must take off batteries).
- One other hemispheric camera seemed not to work at the end of the campaign (user can't switch on power).

What to wear to do the sampling (ask CCRS they may have it for you):

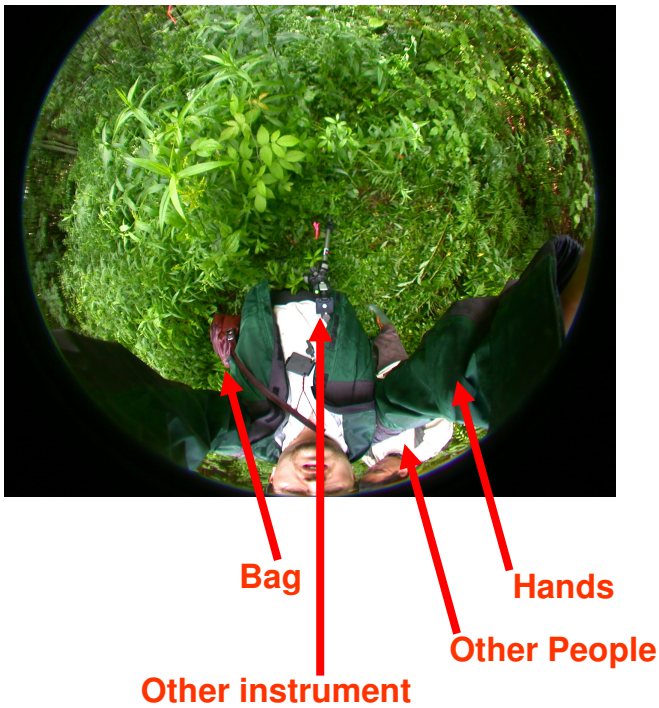
- There were a lot of mosquitos (sampler must take a bug short, a thick pair of trousers).
- It could be a very wet site and it was in summer 2003 so sampler must take a pair of rain boots.

It is more convenient to rent a 4*4 car for the campaign. 4 big roads are going through the site but there are many dusty paths and because of the water a high car is nice. It's ok for walking because even if you have that kind of car, you will have to walk a lot.

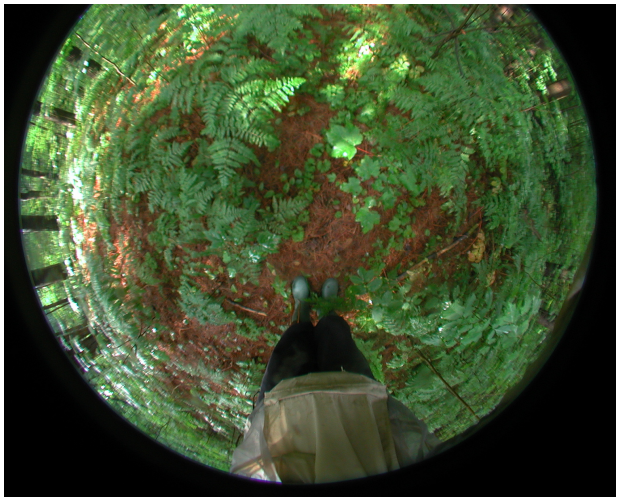
Errors Made During the Campaign: how to ease treatment of hemispherical pictures (for example CAN-EYE Software)

1. Taking pictures down:
   Try to hide yourself as most as possible and your bag and other people and other instruments.

Wrong



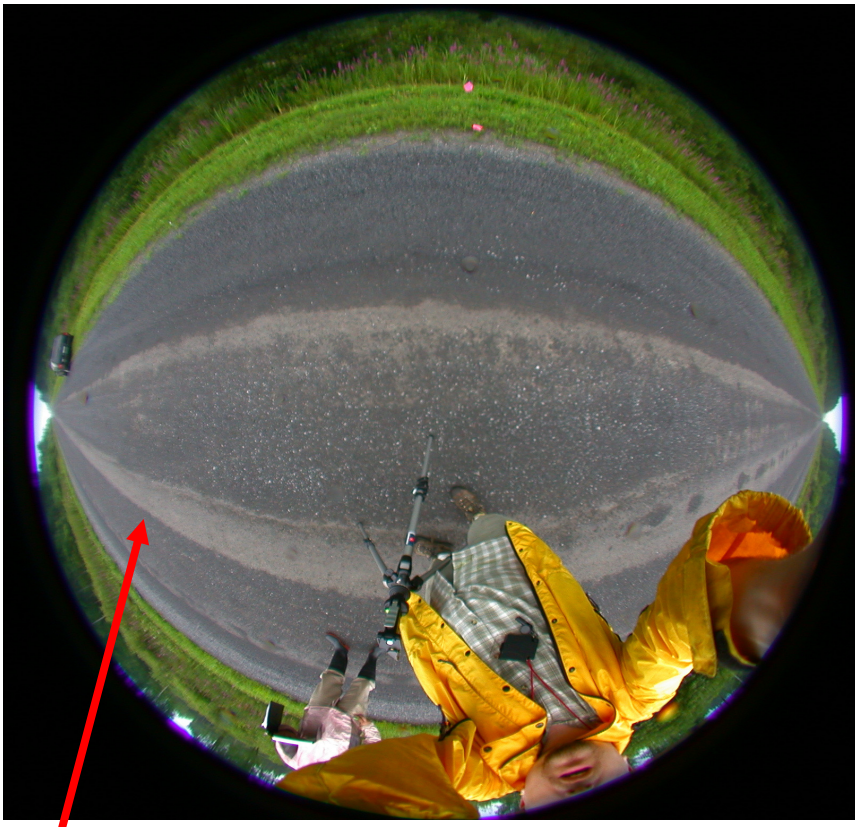
Good



Always take picture in the same direction: not a lost of info but a lost of time processing.

2 Different Positions for the Sun for one ESU

2. Not including paved roads in the picture: it's adding bad information.



Roads must be far from measurements

3. Be careful of the water under the lens: to be masked during the processing… takes time.