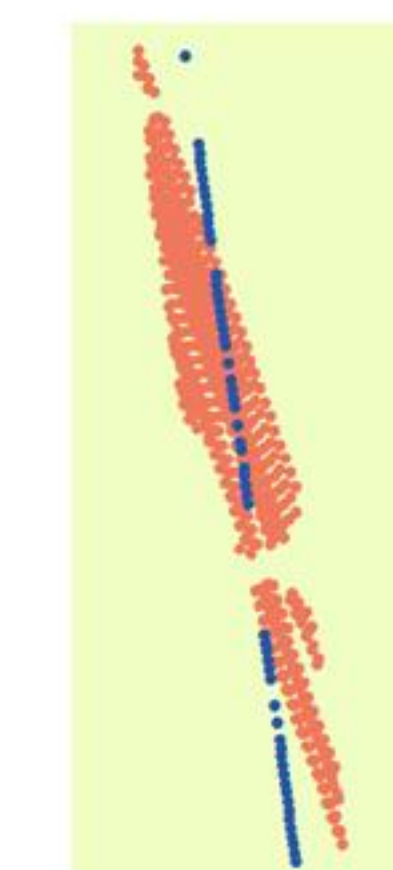
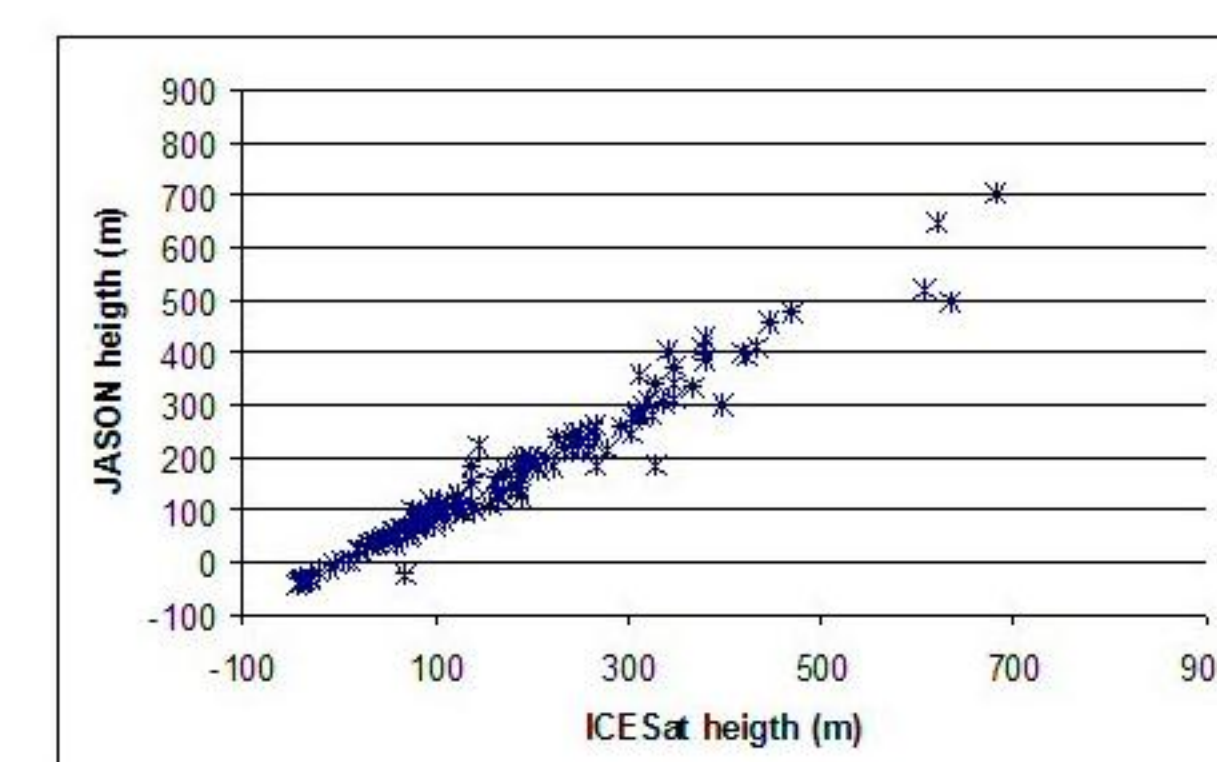
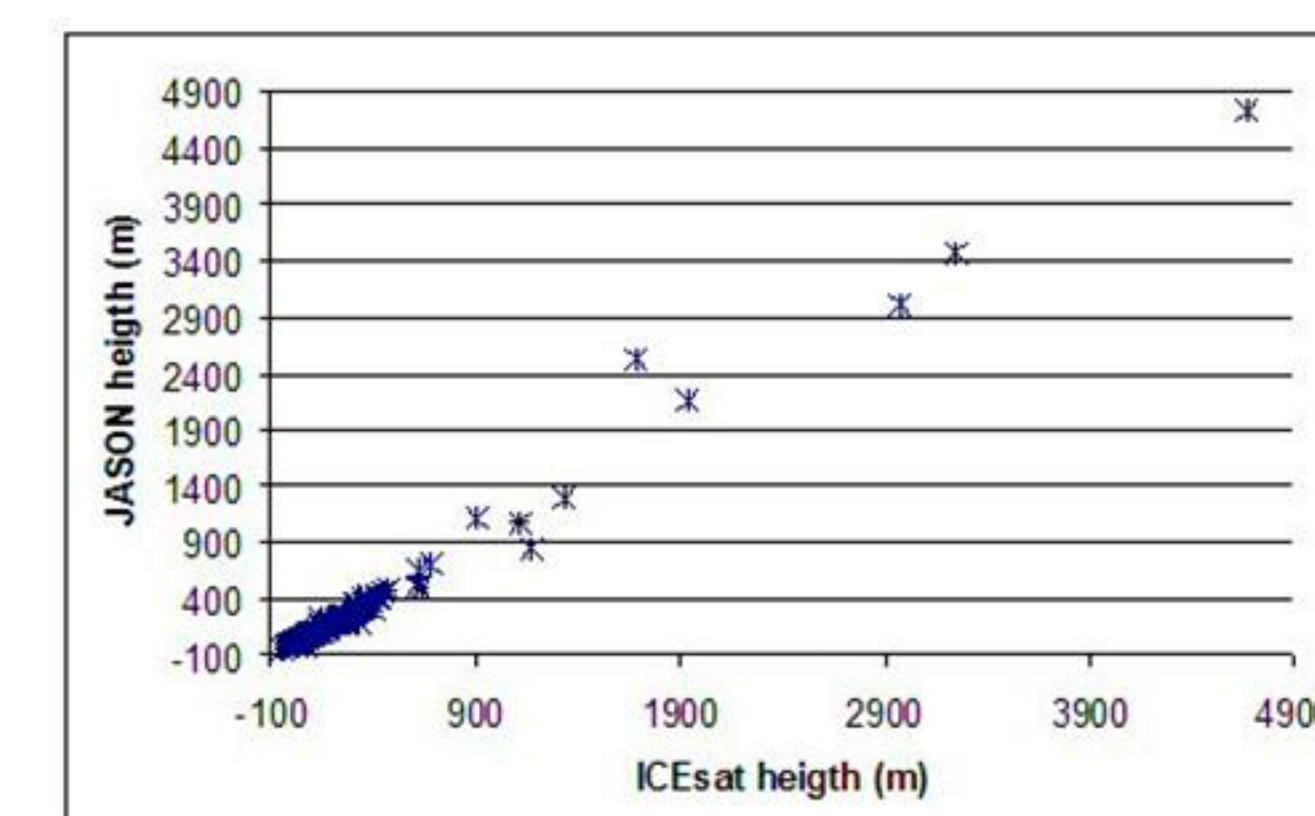
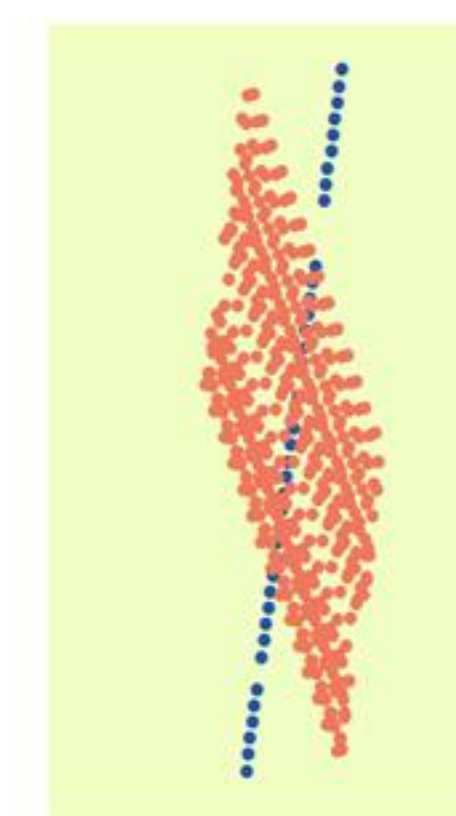
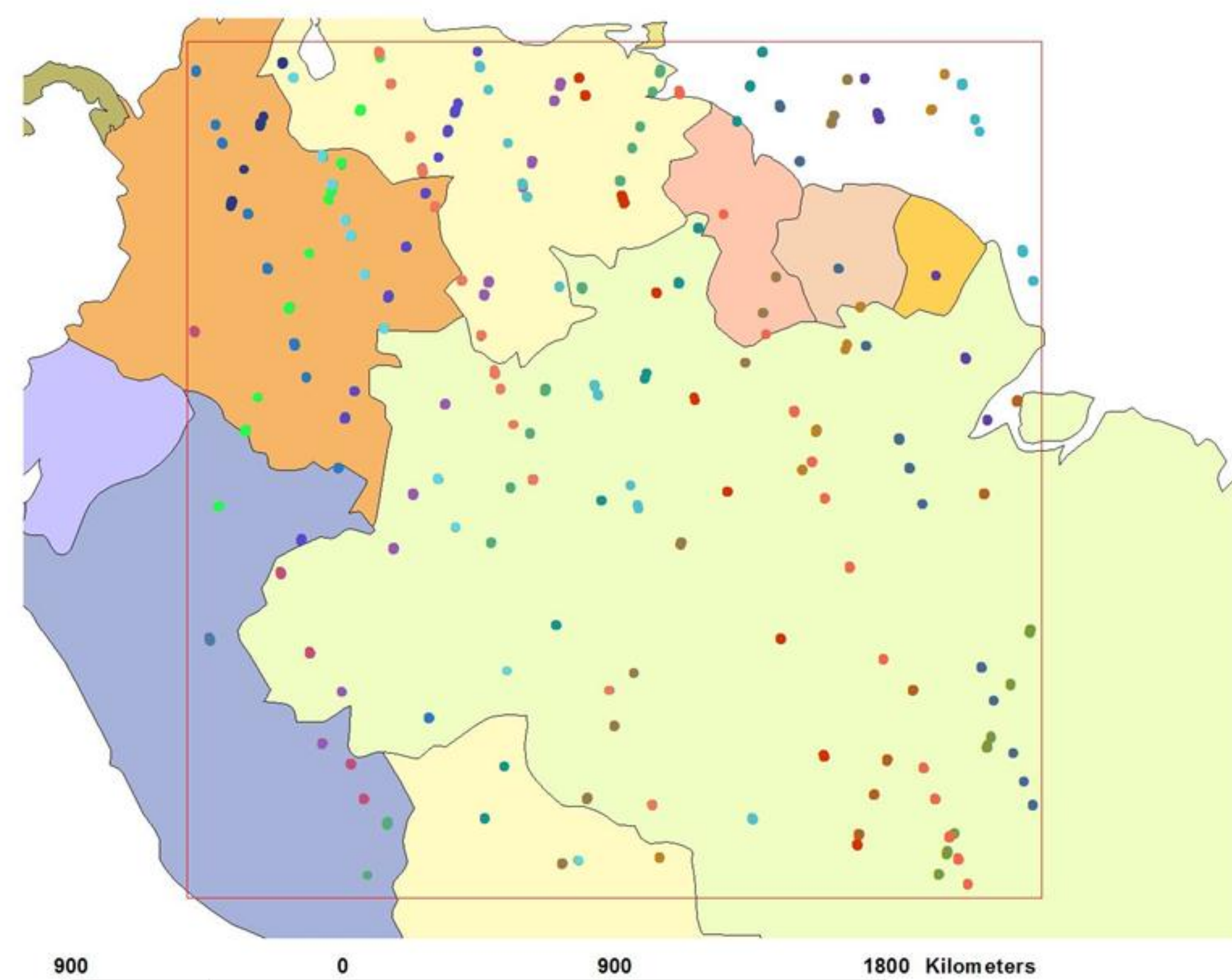


CROSS-COMPARISON of JASON 2 DATA and ICESAT DATA over the AMAZON BASIN

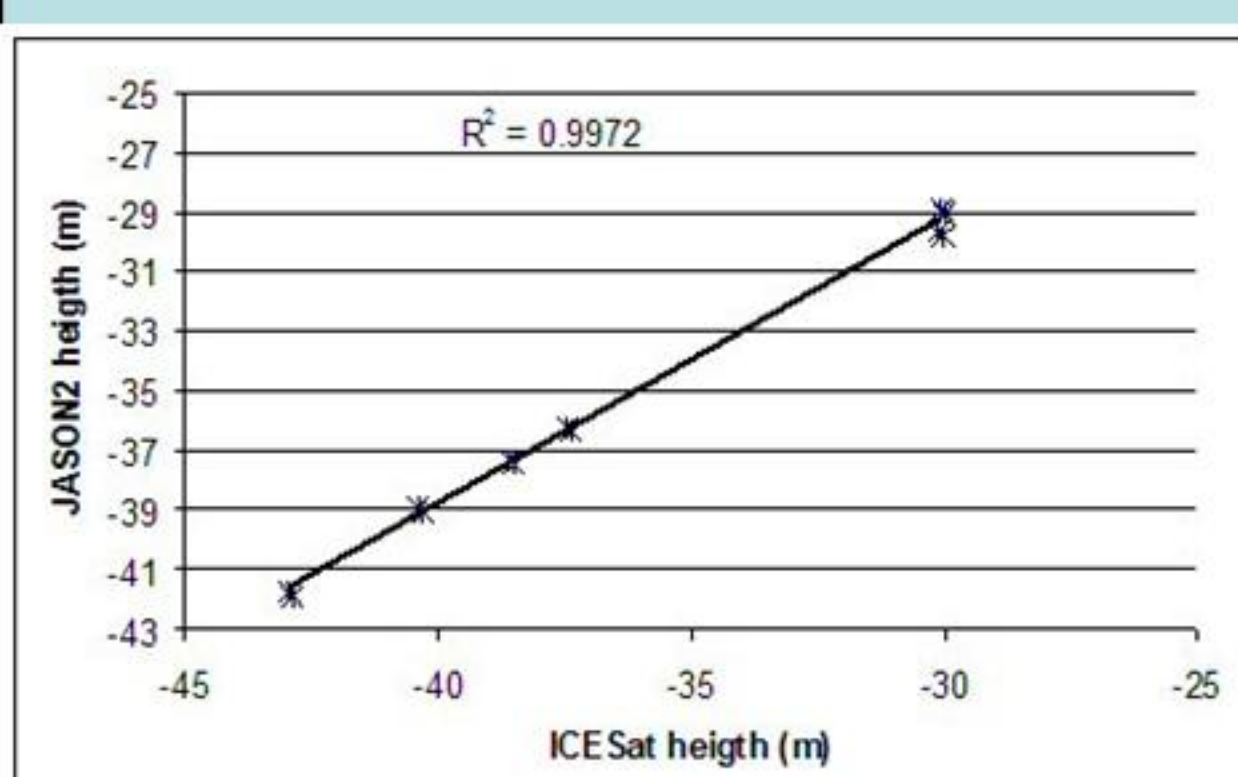
F.Seyler₁, S. Calmant₂, G. Cochonneau₃

1 Espace (IRD), 2 LEGOS (UT3,IRD,CNRS,CNES), 3 LMTG (UT3, IRD,CNRS)

145 crossings between JASON 2 and ICESat tracks ICE1 retracked Jason 2 data and GLA 06 products for ICESat	
JASON	Maximum value: 4731.36 (m unit) Minimum value: - 41.74 (ellipsoidal reference) Standard Deviation (SD): Max: 343.33 Min: 0.14 Mean: 17.39
ICESat	Maximum value: 4666.26 (m unit) Minimum value: - 42.95 (ellipsoidal reference) Standard Deviation (SD): Max: 223.09 Min: 0 Mean: 16.4
Global values - Difference: Max: 846.92m; Min: 0.09m Mean: 38.33m It is necessary to analyse these values in relation to the land surface	



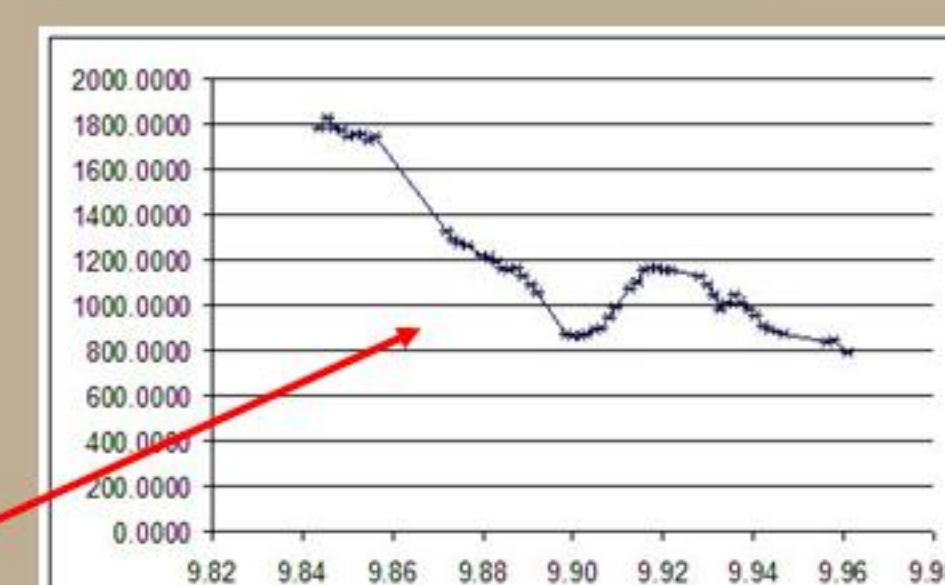
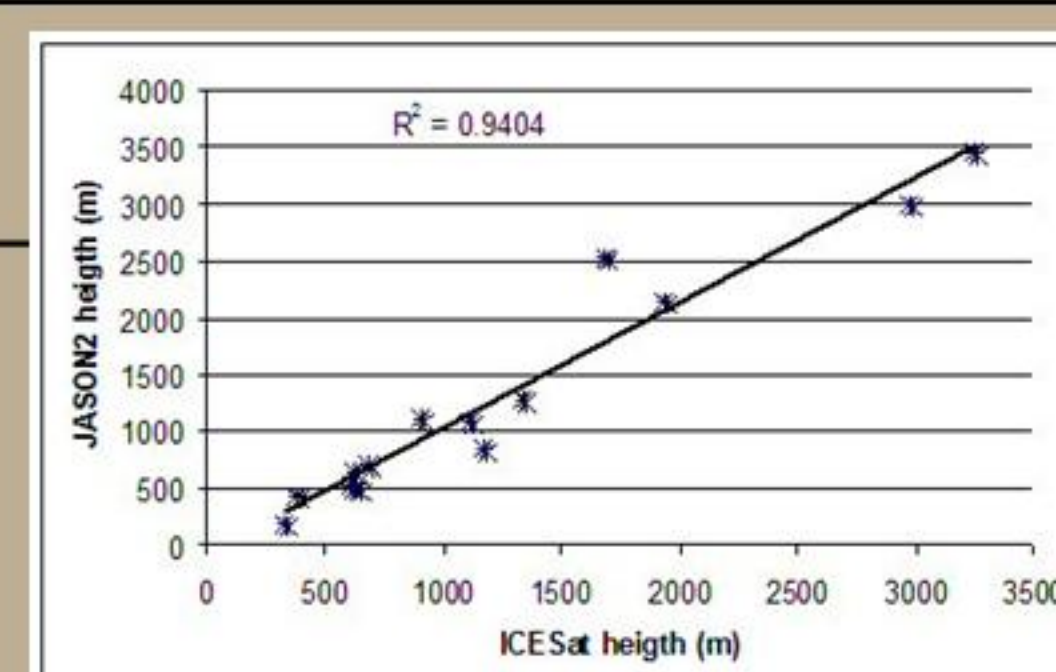
OCEAN



JASON 2 SD	ICESat SD
Max: 0.72	Max: 0.26
Min: 0.21	Min: 0.13
Mean: 0.35	Mean: 0.17
Difference	
Max: 1.47	
Min: 0.46	
Mean: 1.15	

RELIEF

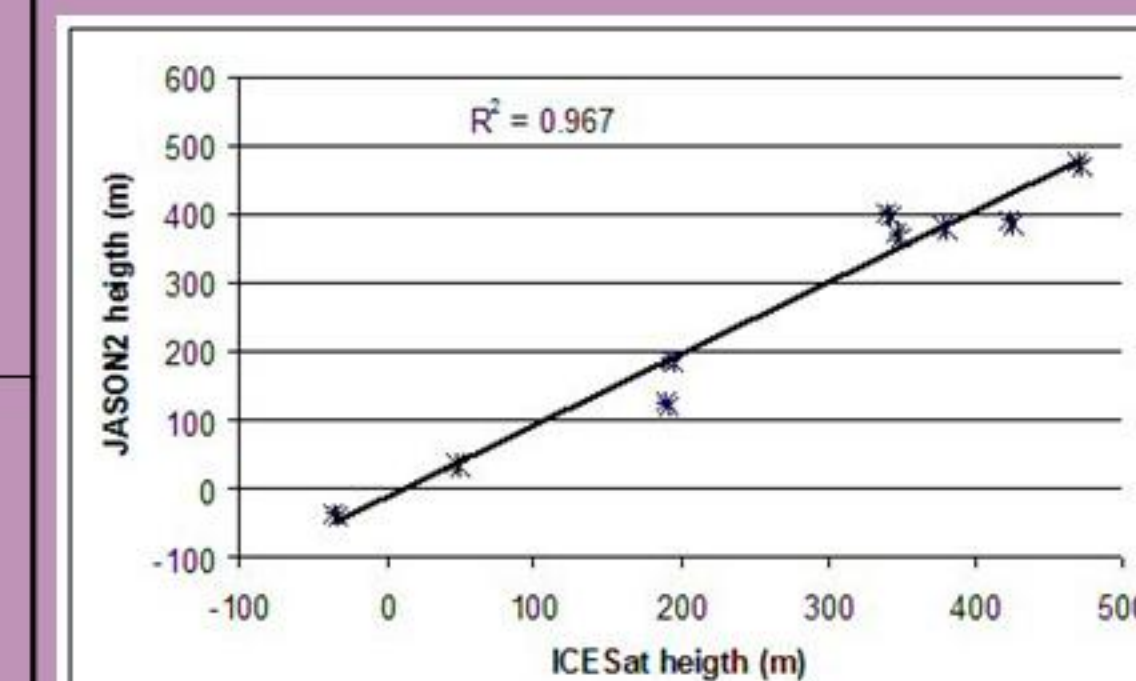
JASON 2 SD	ICESat SD
Max: 343.33	Max: 223.09
Min: 8.67	Min: 15.03
Mean: 84.85	Mean: 76.93
Difference	
Max: 846.92	
Min: 23.9	
Mean: 170.65	



Level difference example in one Icesat sample

DEFORESTED AREA

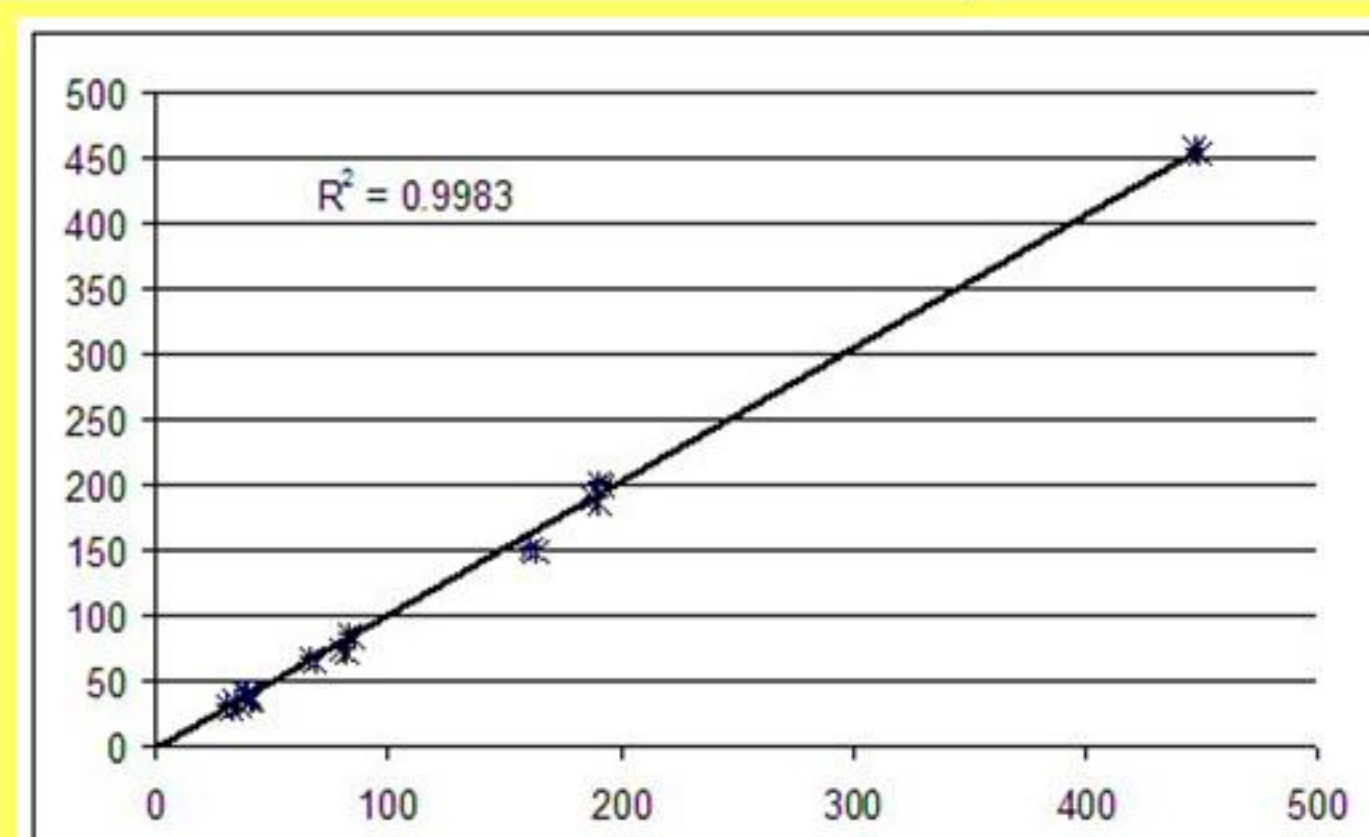
JASON 2 SD	ICESat SD
Max: 51.02	Max: 65.49
Min: 0.31	Min: 0.24
Mean: 15.17	Mean: 20.84
Difference	
Max: 62.45	
Min: 1.33	
Mean: 22.47	



GRASS - SHRUB

JASON 2 SD	ICESat SD
Max: 14.91	Max: 8.06
Min: 0.14	Min: 0.13
Mean: 2.53	Mean: 2.74

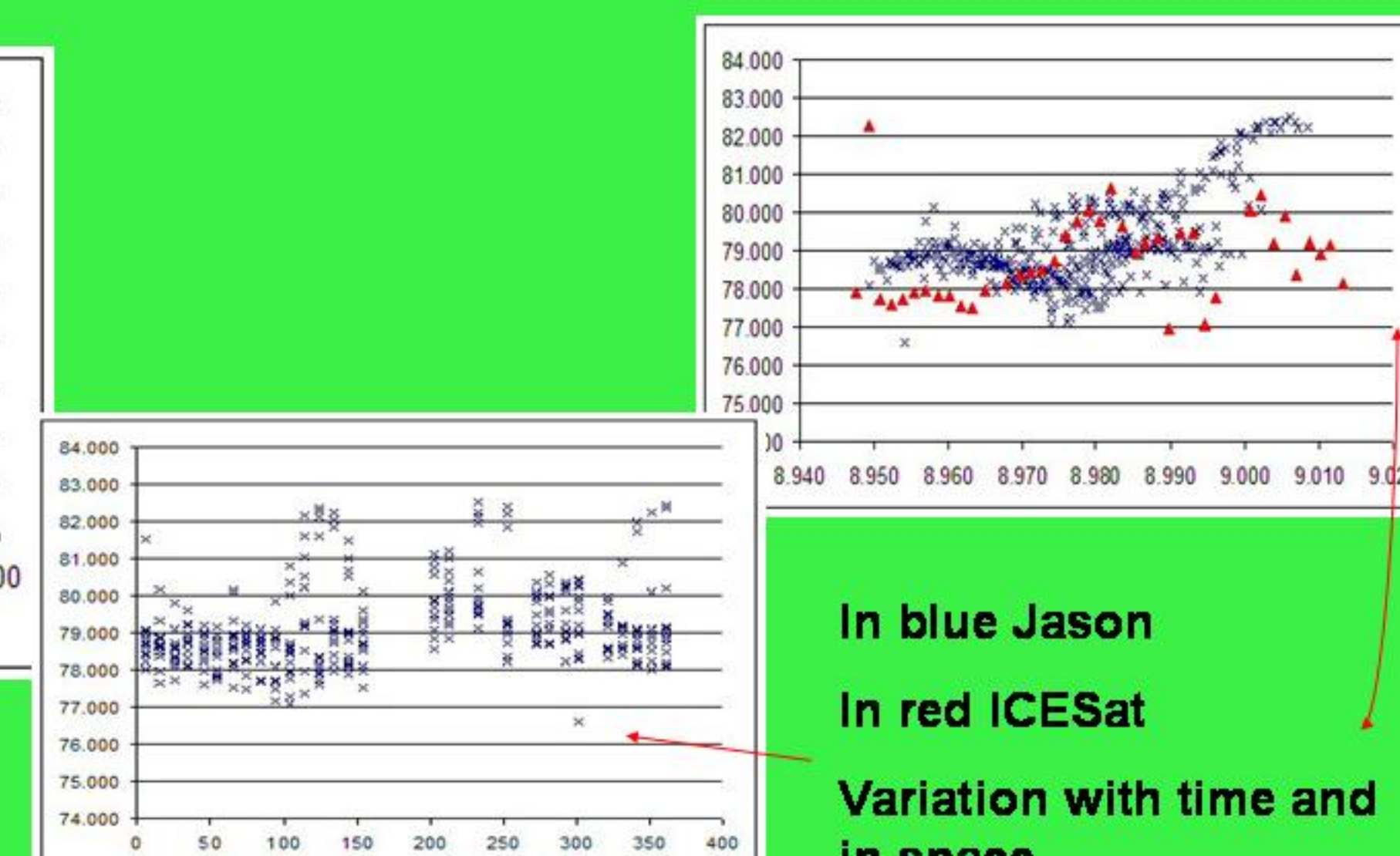
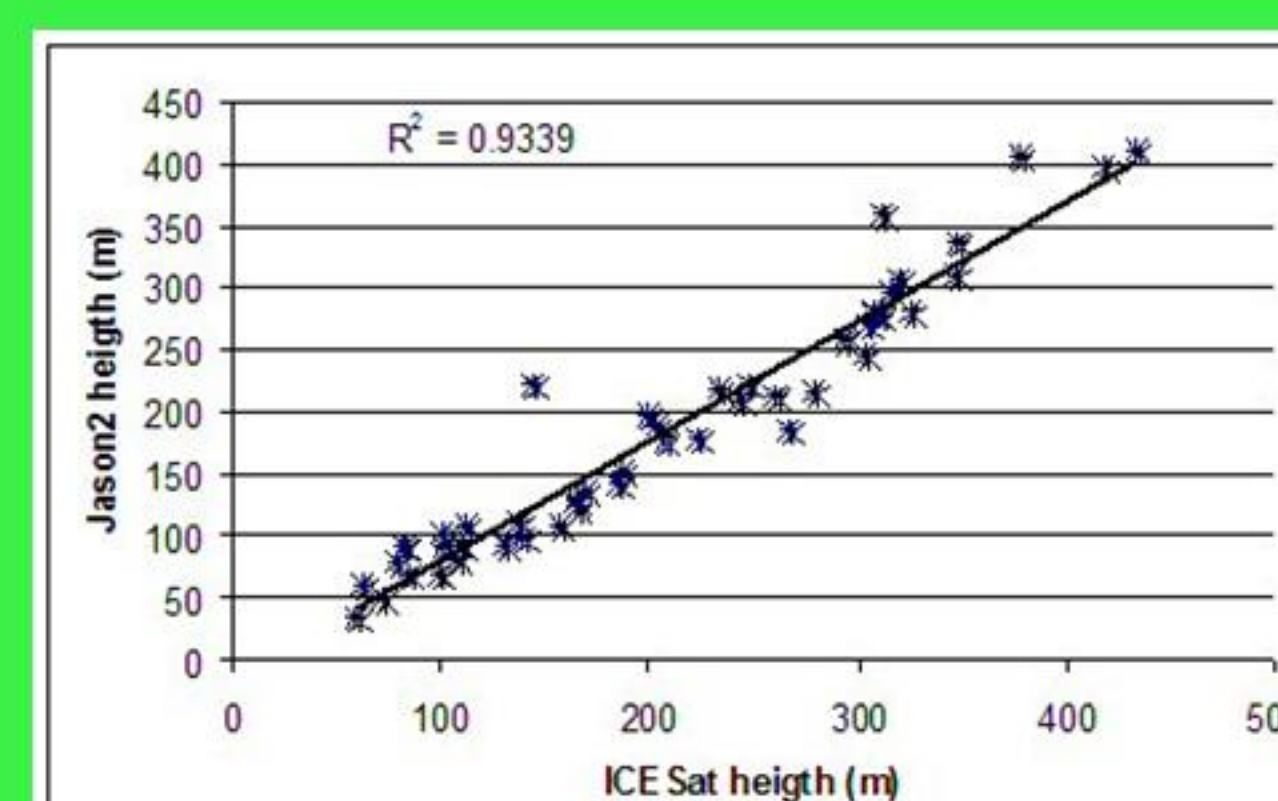
Difference
Max: 11.82
Min: 0
Mean: 3.49



FOREST

JASON 2 SD	ICESat SD
Max: 41.76	Max: 45.75
Min: 0.52	Min: 0.73
Mean: 10.62	Mean: 10.88

Difference
Max: 80.38
Min: 0.1
Mean: 29.16

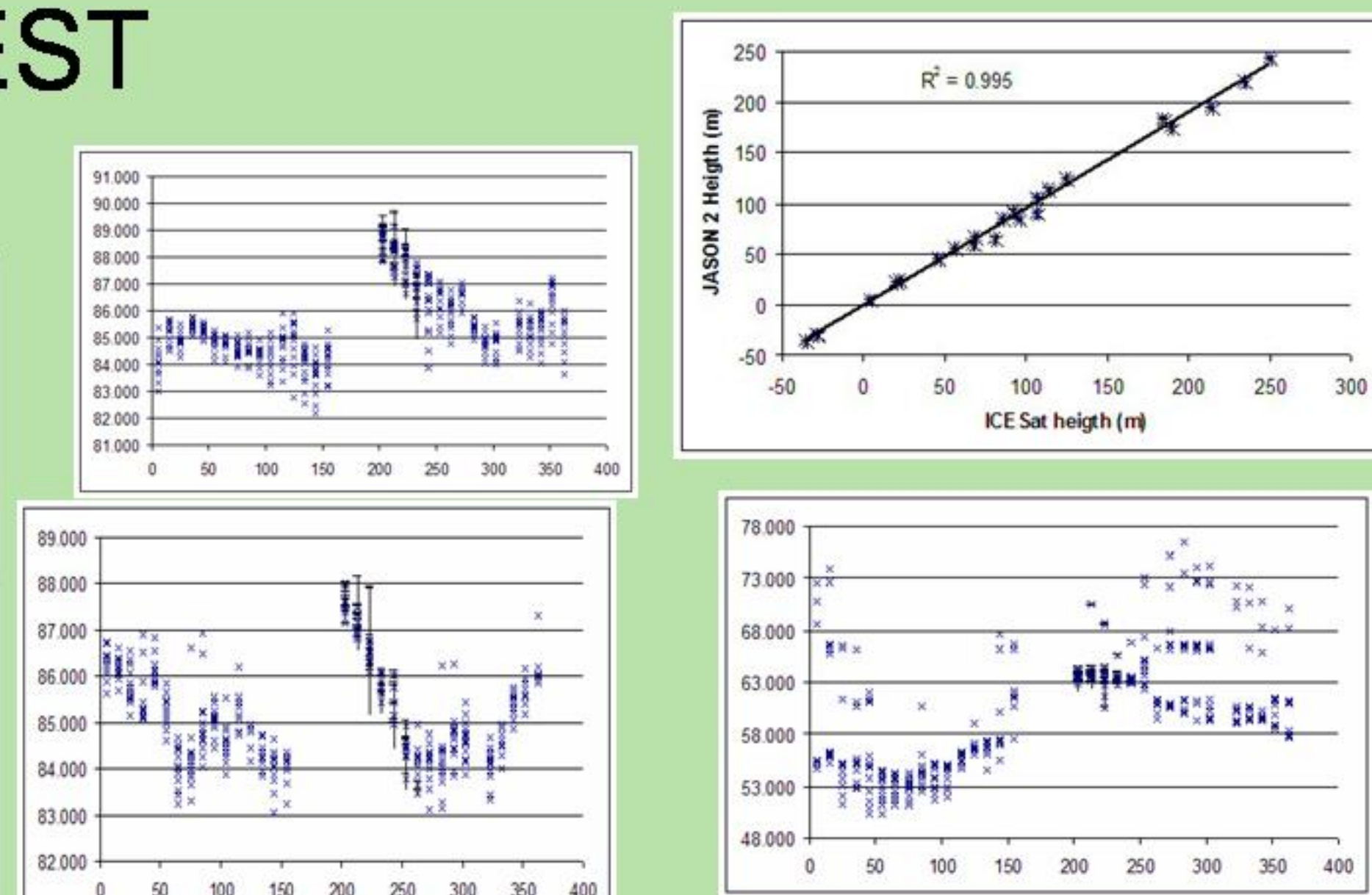


In blue Jason
In red ICESat
Variation with time and in space

FLOODED FOREST

JASON 2 SD	ICESat SD
Max: 15.56	Max: 21.88
Min: 0.16	Min: 0
Mean: 2.07	Mean: 4.92

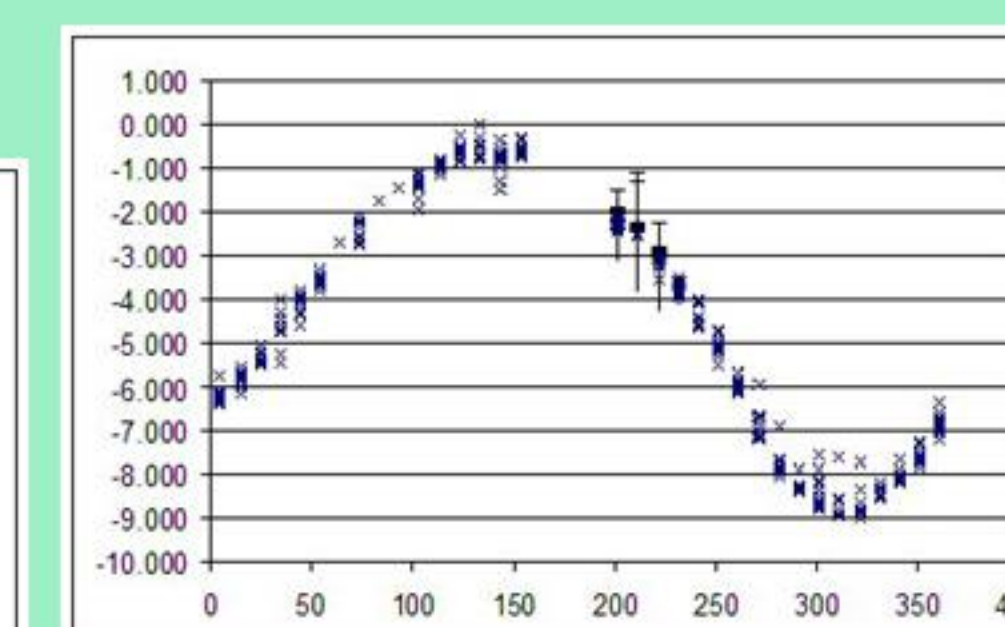
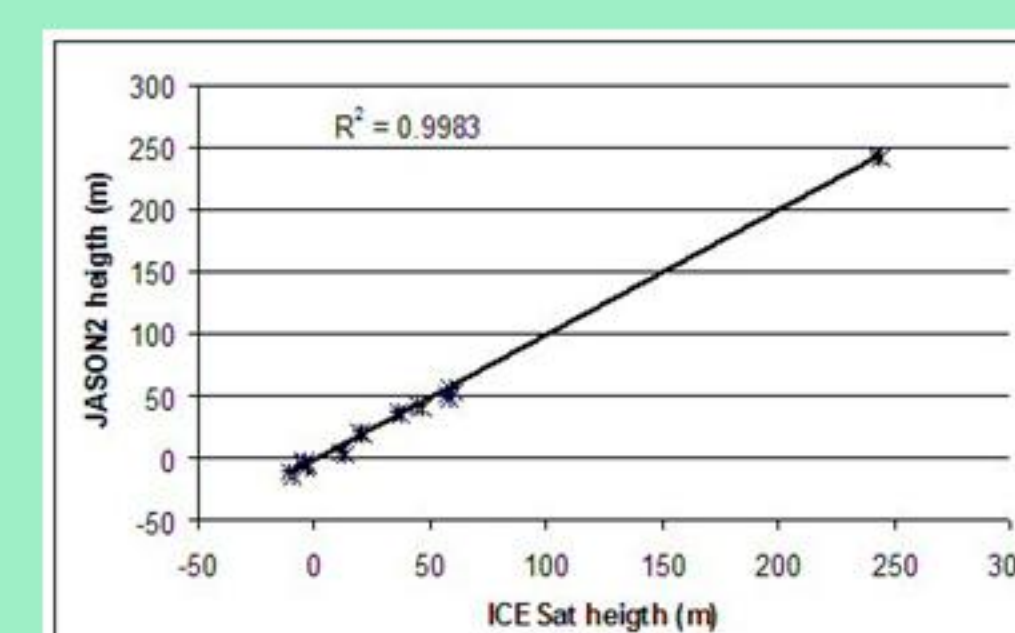
Difference
Max: 33.74
Min: 0.29
Mean: 6.05



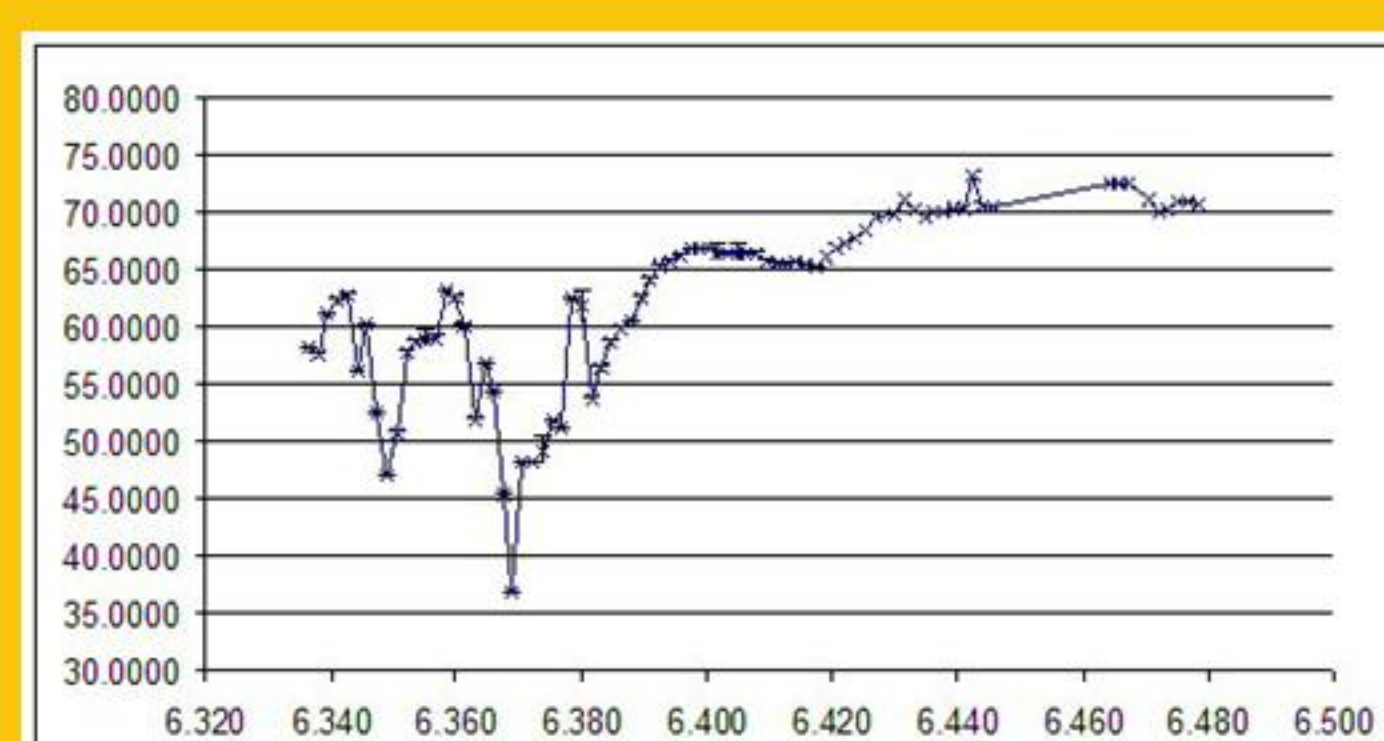
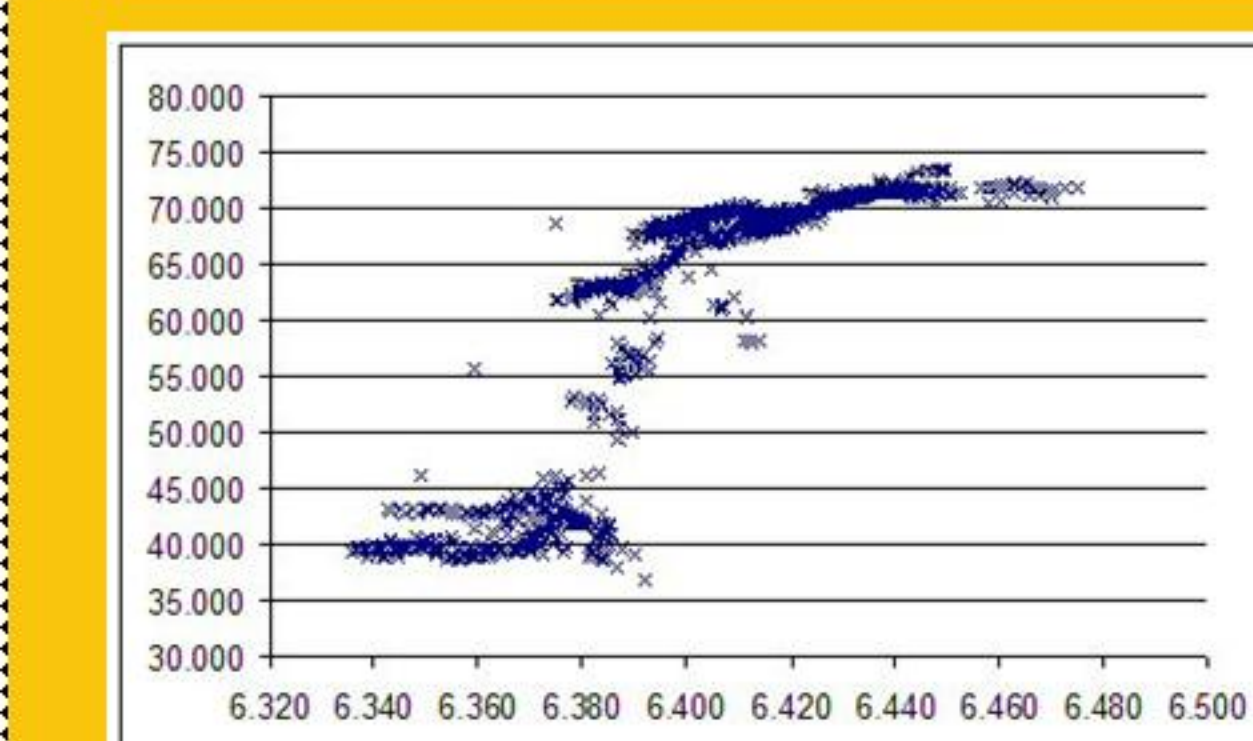
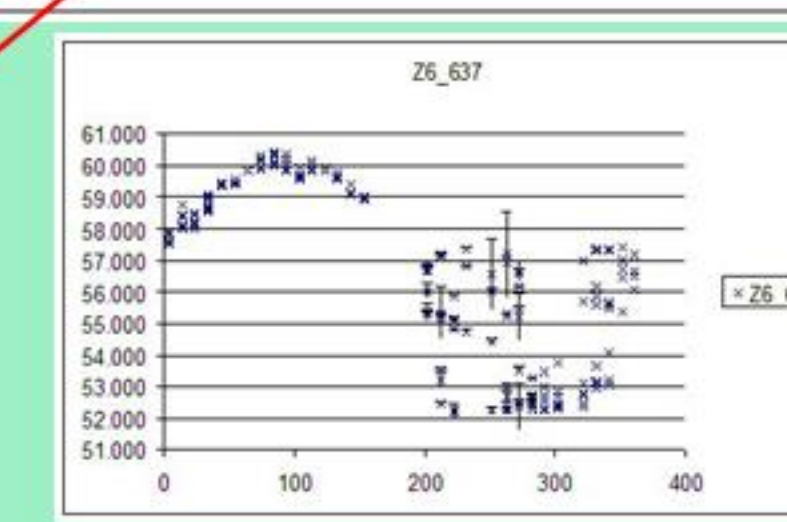
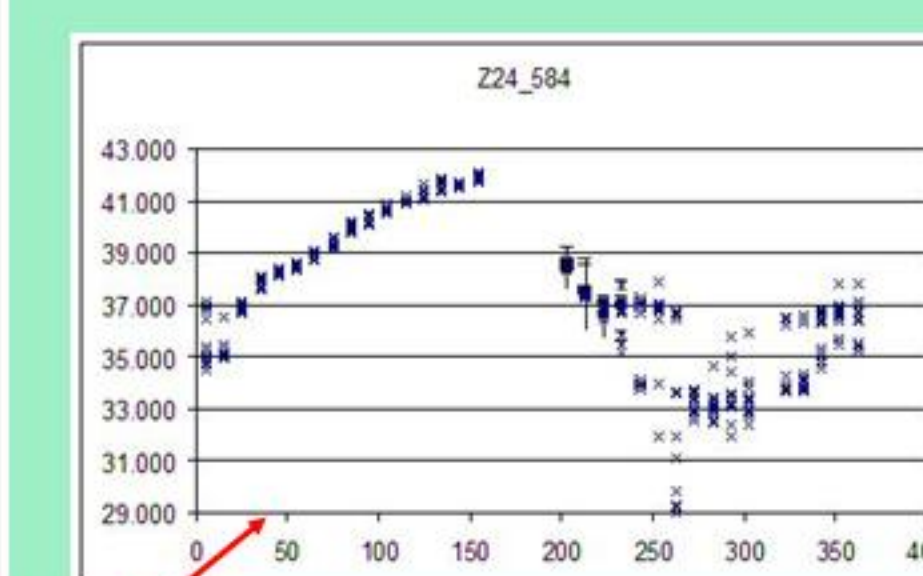
JASON 2 SD	ICESat SD
Max: 19.1	Max: 5.36
Min: 0.97	Min: 0.04
Mean: 3.71	Mean: 1.13

Difference
Max: 6.31
Min: 0.09
Mean: 3.71

WATER



Mixture river - floodplain at low water



The bias on ocean between the two sensors is about 1m
 JASON 2 is quite as accurate over water and savannas, but it can occur some mixture between water bodies; for flooded forest, there is less dispersion of the data for JASON2 than for ICESat (better reflexion on water plane) but multi-reflexion effects. For forest, the dispersion of the measurements is very similar for the two sensors, despite the penetration difference of the incident beam.

JASON2 and ICESat behave differently, but the cross-comparison allows drawing some conclusions on JASON2 data over land