

Evento finale - Progetto RESBA



Tecnologia e utilizzo dell'interferometria per il monitoraggio delle dighe
Technologie et utilisation de l'interférométrie pour la surveillance des barrages

Dott. Andrea Uttini

TRE ALTAMIRA s.r.l.

Webinar

3-4 Dicembre 2020



INRAE

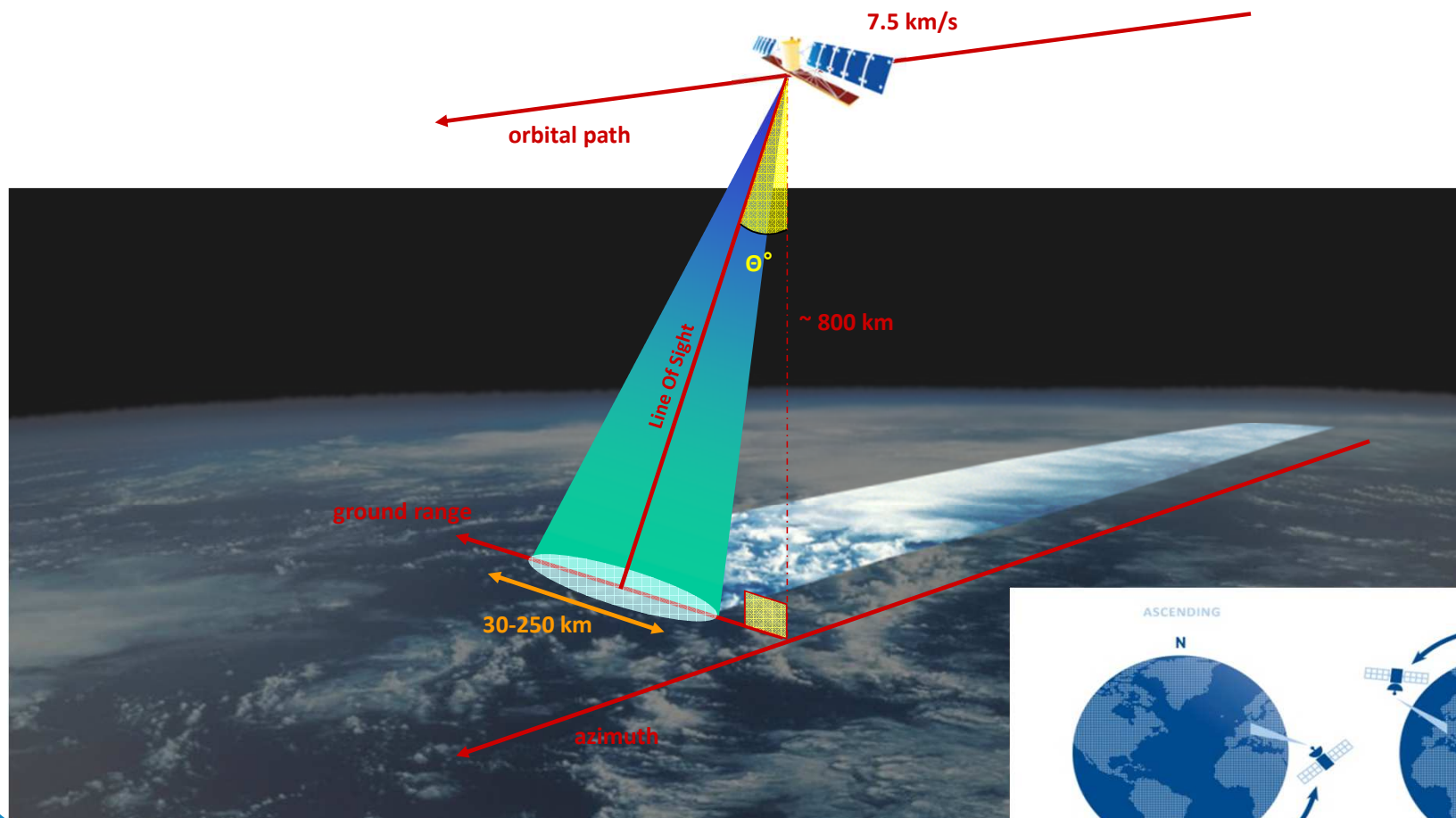


**POLITECNICO
DI TORINO**



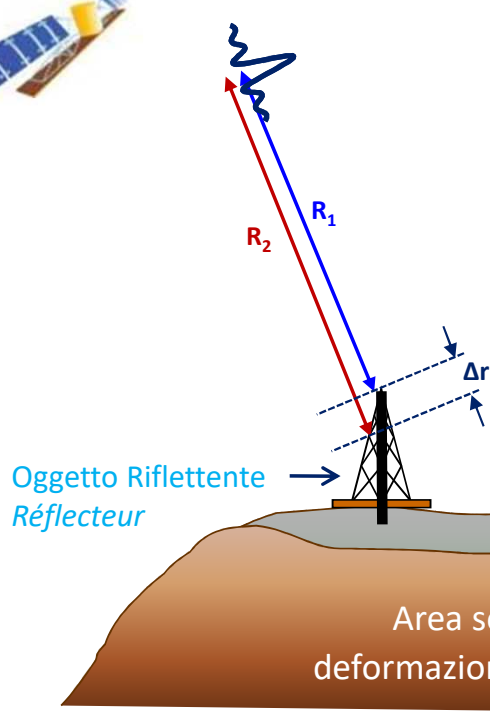
INTERFEROMETRIA SATELLITARE - INTERFÉROMÉTRIE SATELLITAIRE

PRINCIPI DI BASE – PRINCIPES DE BASE

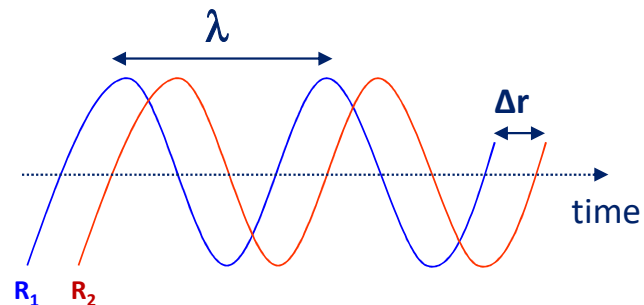


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PRINCIPI DI BASE – PRINCIPES DE BASE



Misura della variazione di distanza
Mesure de la variation de distance



Lunghezze d'onda:

Longueur d'onde:

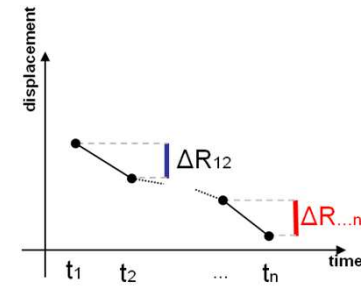
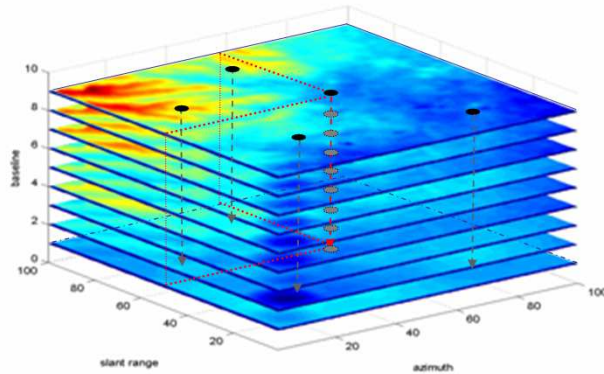
Banda C = 5.66 [cm]

Banda X = 3.10 [cm]

Banda L = 24.0 [cm]

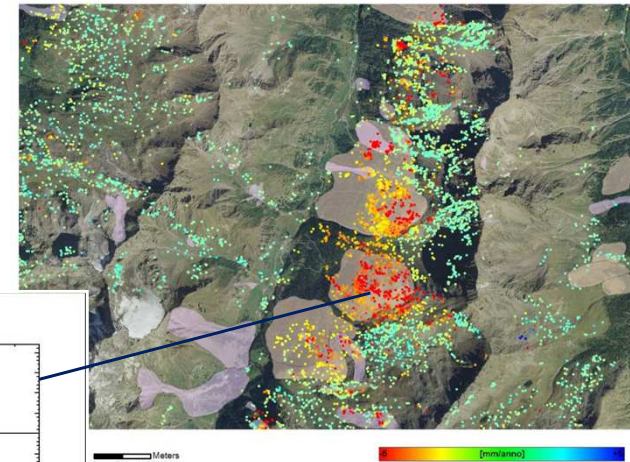
INTERFEROMETRIA SATELLITARE - INTERFÉROMÉTRIE SATELLITAIRE

TECNICA – TECHNIQUE SqueeSAR® - CRInSAR

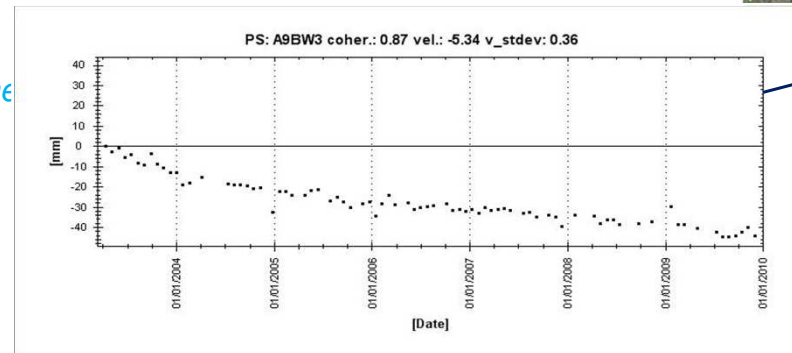


Valori puntuali di velocità media annua di spostamento

Valeurs ponctuelles de la vitesse annuelle moyenne de déplacement



Serie storiche di spostamento
Données historiques de déplacement



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TECNICA – TECHNIQUE SqueeSAR® - CRInSAR



RIFLETTORI RADAR – *réflecteurs radar*

Permanent Scatterers (PS)



Distributed Scatterers (DS)



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RIFLETTORI ARTIFICIALI - RÉFLECTEURS ARTIFICIELS

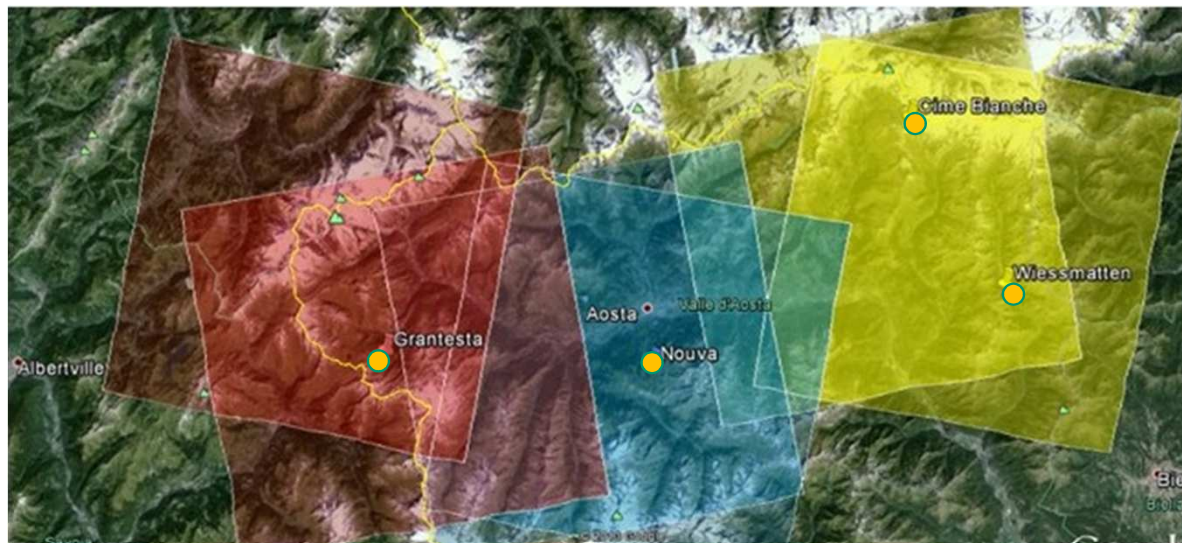


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IMMAGINI E SBARRAMENTI – IMAGES ET BARRAGES



Nouva - Pila Gressan



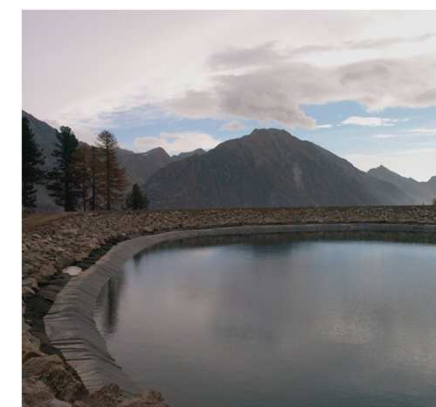
Cime Bianche - Cervinia



La Grantesta- La Thuile



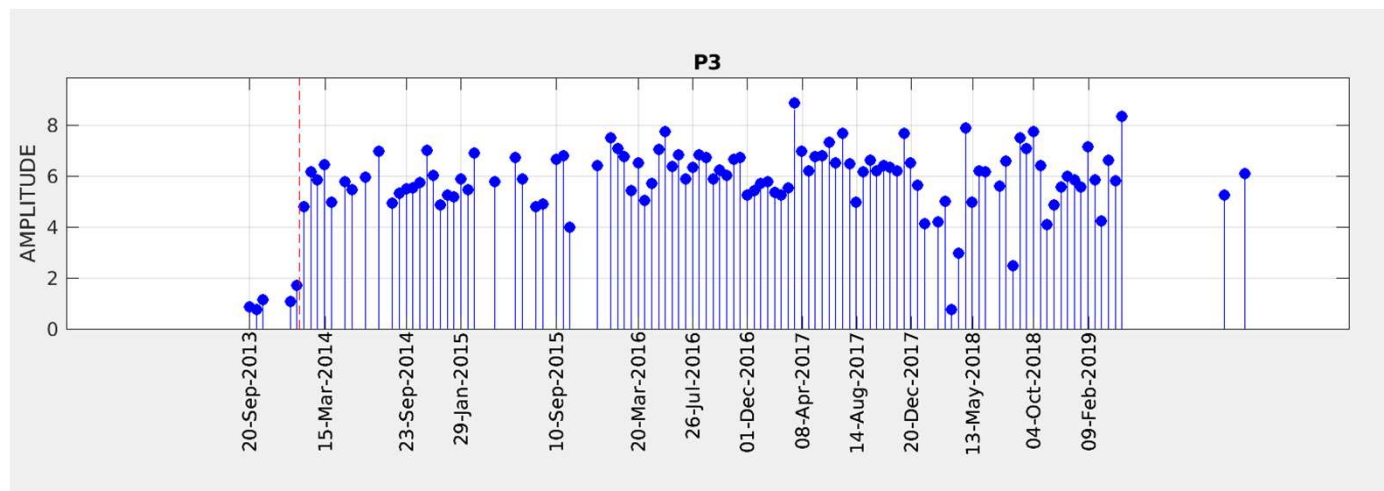
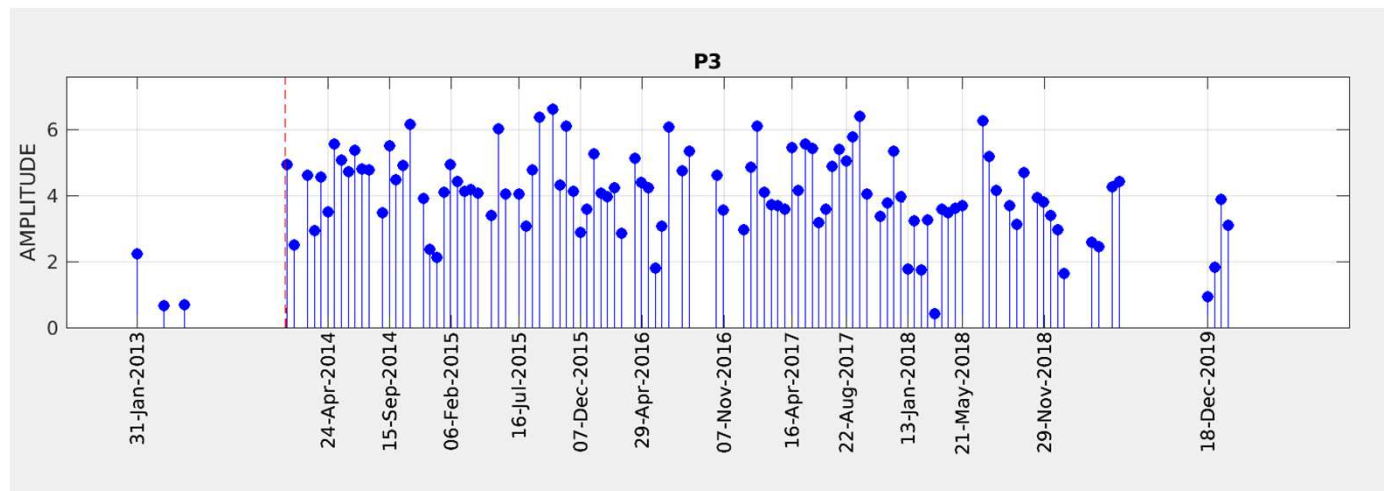
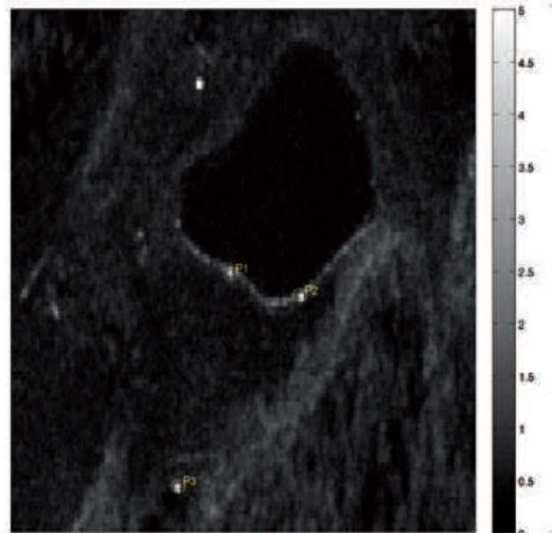
Weissmatten - Gressoney



AOI	CONSTELLATION	GEOMETRIA	SAT	MODE	TRACK
Nouva	COSMO-SkyMed	ascending	sar1	H4-01	2
		descending	sar1	H4-03	128
Weissmatten Cime Bianche	COSMO-SkyMed	ascending	sar2	H4-03	2
		descending	sar2	H4-01	128
Grantesta(*)	COSMO-SkyMed	ascending	sar2	H4-05	165
		descending	sar3	H4-04	128

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TEST DI VISIBILITA' - TEST DE VISIBILITÉ



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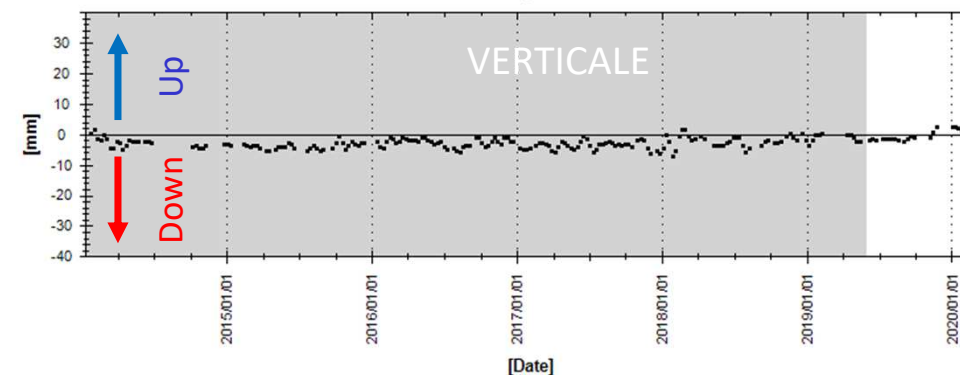
RISULTATI CRInSAR – DONNÉES CRInSAR

CIME BIANCHE – VALTOURNENCHE

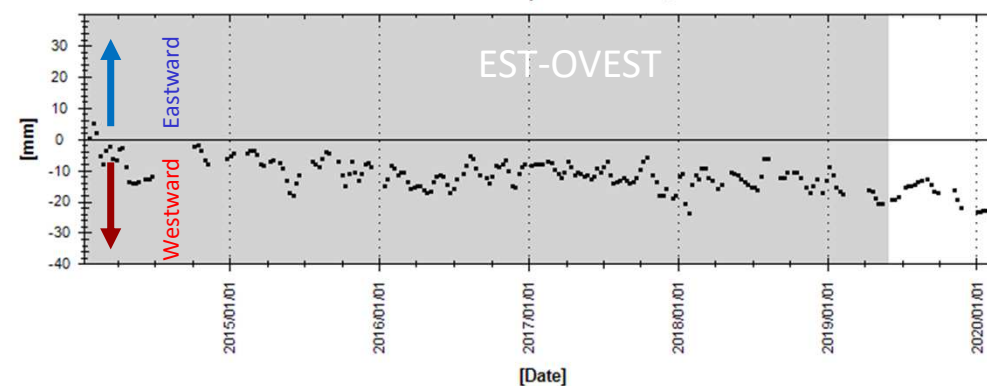


AR	LAT	LON	QUOTA (elliss)
C1	45,91655572	7,68542569	3042,252
C2	45,91722087	7,68724555	3042,62
C3	45,91577821	7,68592775	3043,897

C2 - deformation rate: 0,43 - deformation rate standard deviation: 0,10
cumulative displacement: 2,80



C2 - deformation rate: -1,94 - deformation rate standard deviation: 0,20
cumulative displacement: -26,80



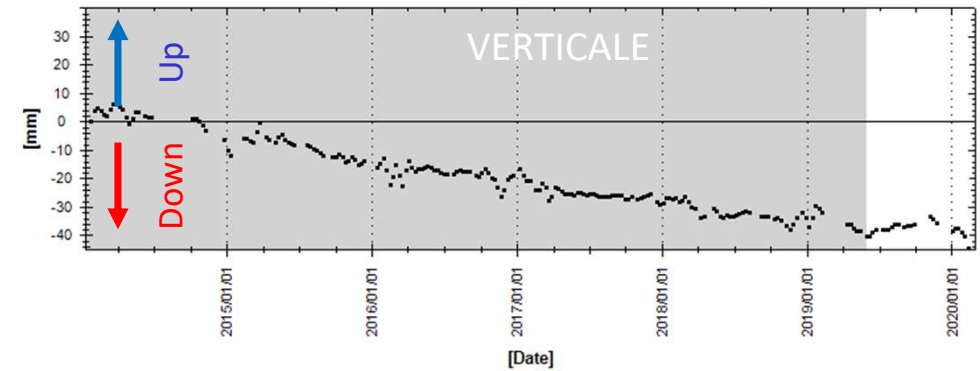
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RISULTATI CRInSAR – DONNÉES CRInSAR

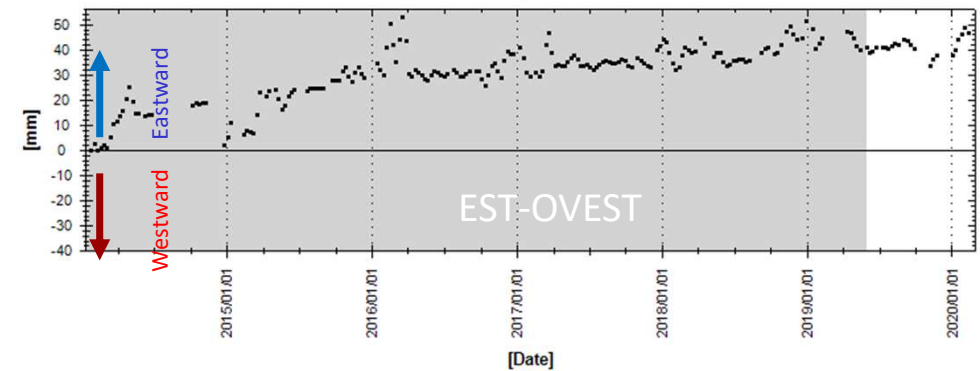
WEISSMATTEN – GRESSONEY ST. JEAN



W1 - deformation rate: -7,38 - deformation rate standard deviation: 0,20
 cumulative displacement: -44,60



W1 - deformation rate: 5,60 - deformation rate standard deviation: 0,30
 cumulative displacement: 46,30

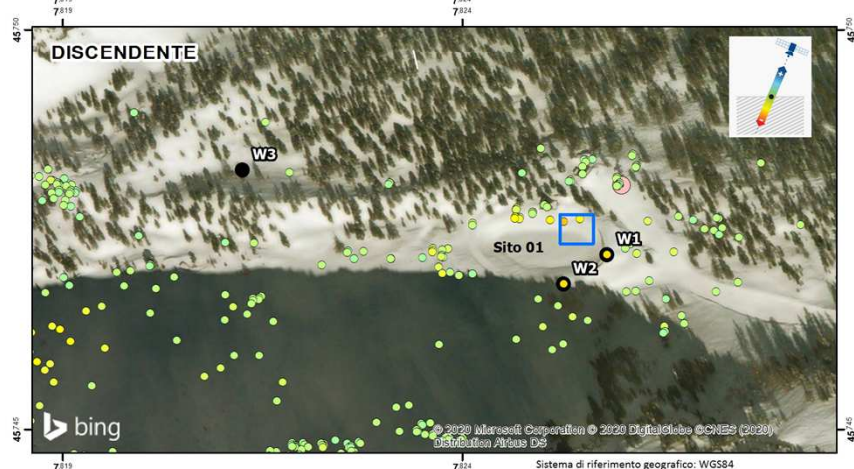


INTERFEROMETRIA SATELLITARE - INTERFÉROMÉTRIE SATELLITAIRE

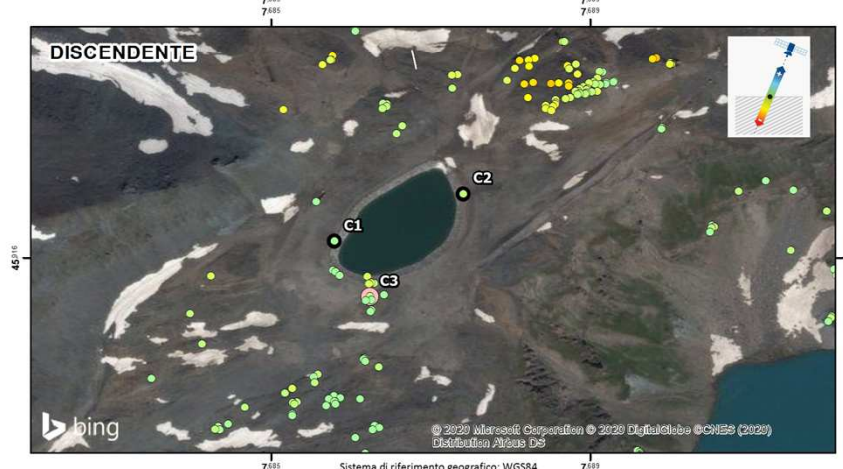
RISULTATI SqueeSAR® – DONNÉES SqueeSAR®



WEISSMATTEN – GRESSONEY ST. JEAN

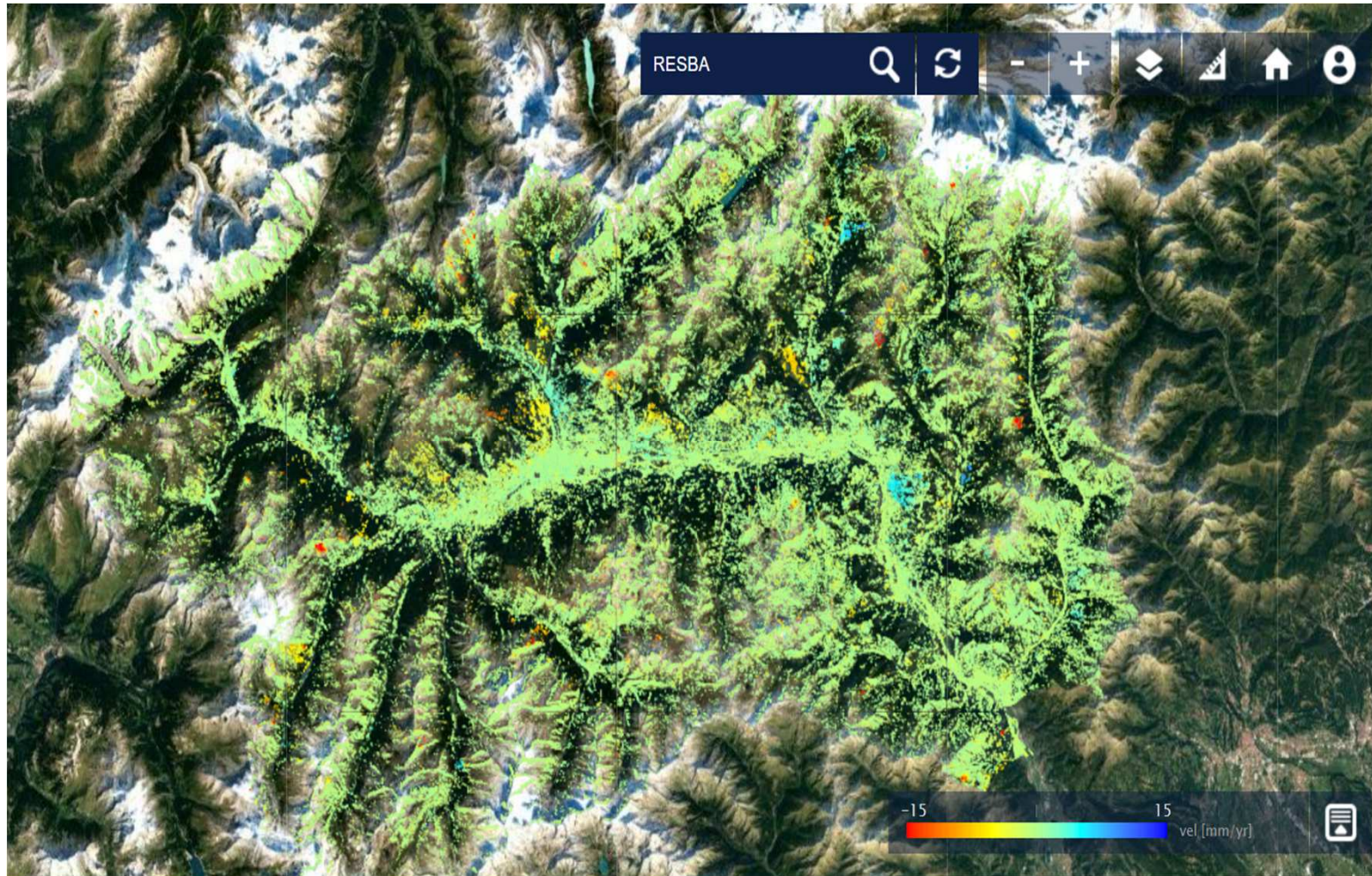


CIME BIANCHE – VALTOURNENCHE



INTERFEROMETRIA SATELLITARE - INTERFÉROMÉTRIE SATELLITAIRE

MONITORAGGIO CONTINUO SqueeSAR® VALLE D'AOSTA – SATELLITE SENTINEL
Surveillance continue SqueeSAR® VALLÉE D'AOSTE – SATELLITE SENTINEL

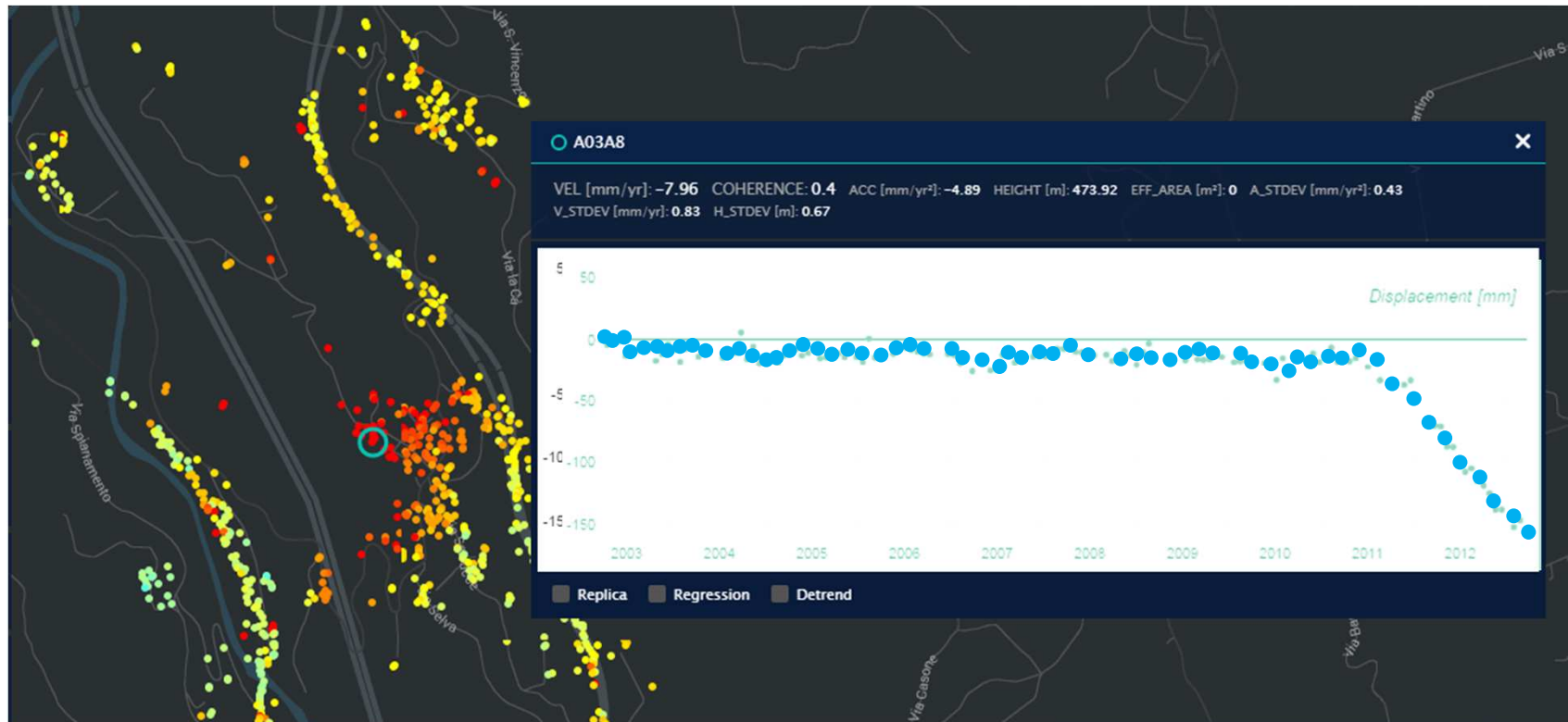


INTERFEROMETRIA SATELLITARE - INTERFÉROMÉTRIE SATELLITAIRE

MONITORAGGIO CONTINUO SqueeSAR® VALLE D'AOSTA – SATELLITE SENTINEL
Surveillance continue SqueeSAR® VALLÉE D'AOSTE – SATELLITE SENTINEL



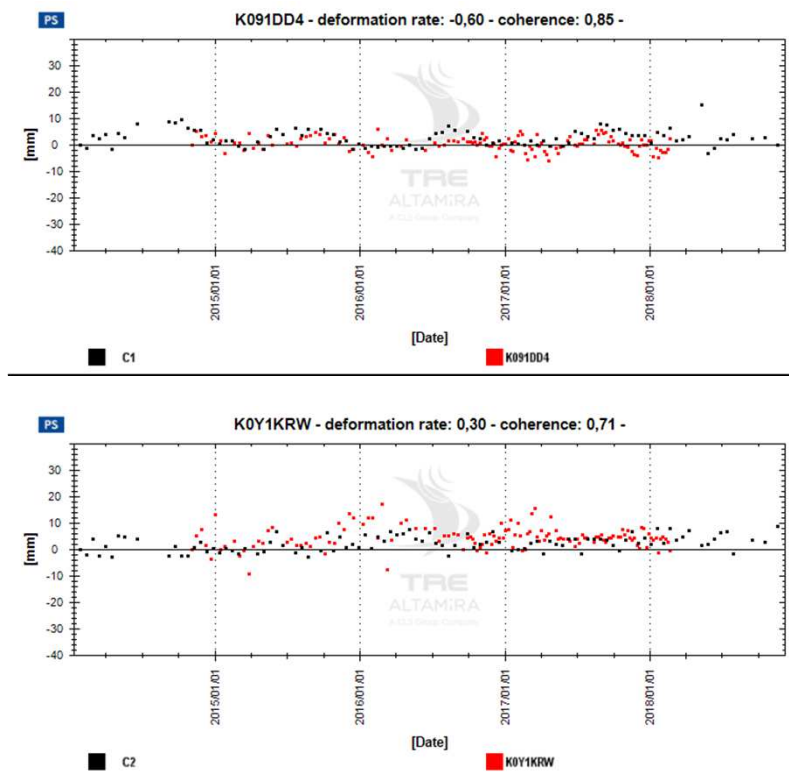
Analisi automatica della variazione di velocità delle serie storiche
Analyse automatique des variations de vitesse des données historiques de déplacement



INTERFEROMETRIA SATELLITARE - INTERFÉROMÉTRIE SATELLITAIRE

CSK vs SNT

Cimebianche - Ascendente



Weismatten - Ascendente

