Rencontres 2019

LES NOUVELLES TECHNOLOGIES AU SERVICE DE LA GESTION DES SINISTRES ASSURABLES (A9)

27èmes Rencontres du Risk Management AMRAE

Jeudi 7 février – 9h-10h30

PRÉSENTATION

Rencontres 2019

Intervenants

Philippe Donaint	**Directeur général de TEXA GLOBAL SOLUTIONS, Group Stelliant**
Anne Urdiroz	**Chargée d'affaires au sein de TRE ALTAMIRA**
Christopher Scheldon	**Head of Claims and New Technologies Ideation, AGCS**

Modérateur

Michel Josset	**Faurecia Directeur des Assurances, de la Prévention et de l'Immobilier**

AGENDA

- **Introduction, présentation des intervenants - 5min,**
- **La digitalisation au service de la gestion des sinistres dommages:**
  C. Sheldon (Allianz) , P. Donaint (Texa) - 45 min
- **Application à la gestion de sinistres de la technologie de détection de mouvements du sol par images satellite radar :**
  Anne Urdiroz, Tre Altamira - 20 min
- **Démonstration de la plate forme digitale Digisinistre pour la gestion de sinistres simples :**
  P. Donaint, Texa - 10 min
- **Conclusions, questions - 15 min**

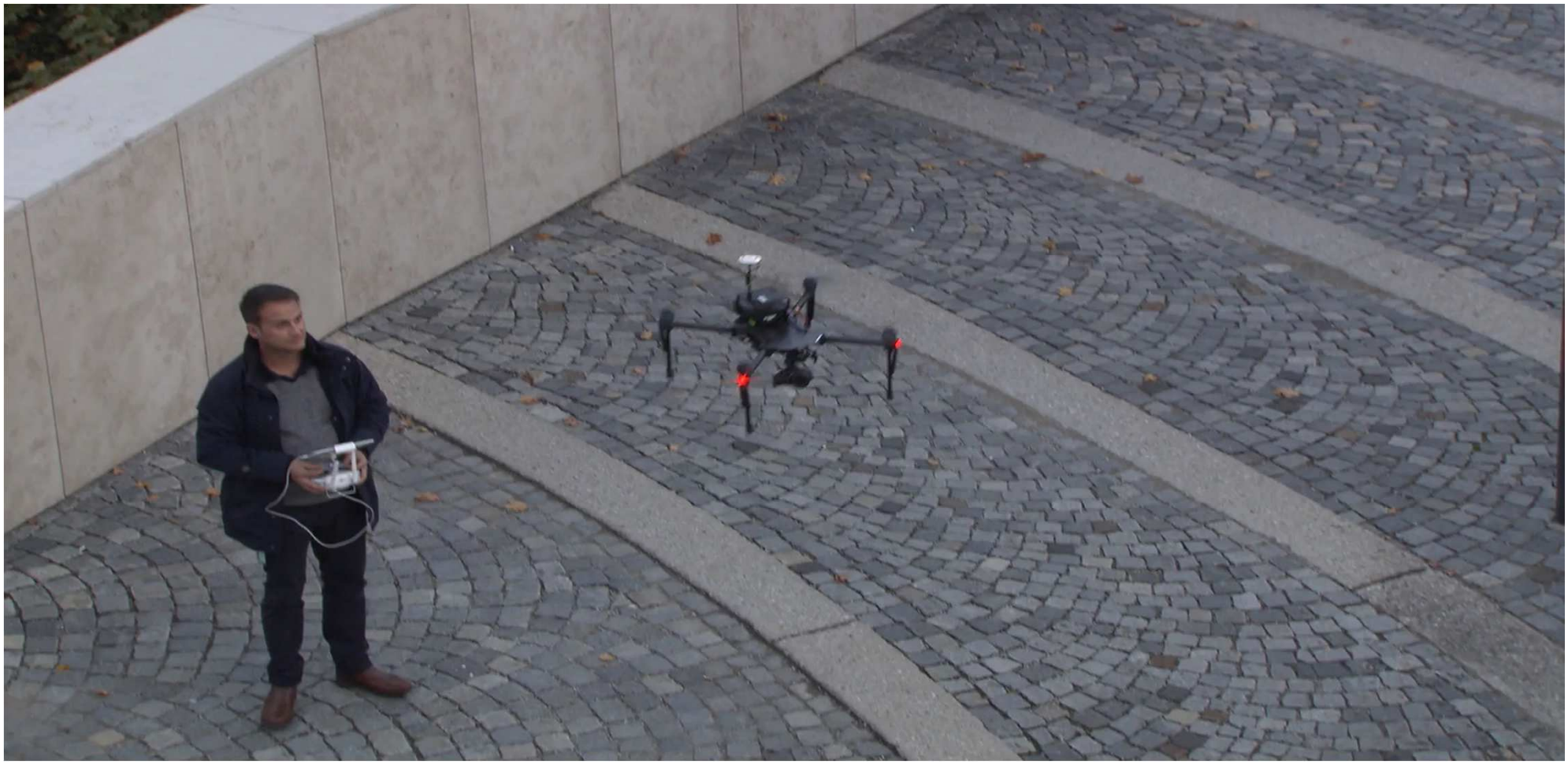
Allianz Global Corporate & Specialty SE

CLAIMS & NEW TECHNOLOGIES IDEATION:

DIGITALLY ENHANCED CLAIMS HANDLING

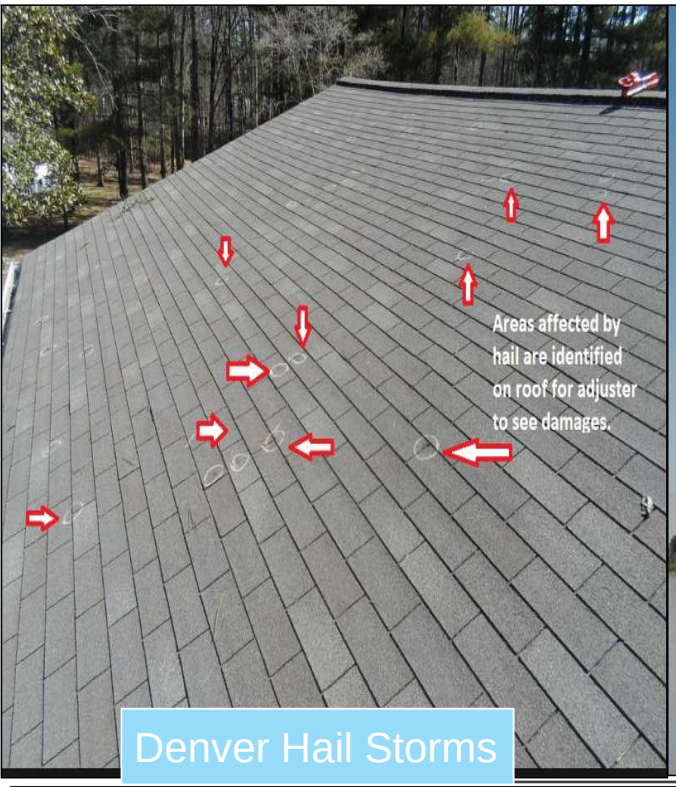
TODAY WE HAVE TO THINK INNOVATIVELY, THINK BIG, THINK DIFFERENTLY, AND THINK OUTSIDE OF THE BOX

Claims & New Technologies Ideation Workshop 1.0



Drones Services & Cloud Information Platform

DRONE FLIGHTS FLOWN GLOBALLY



Denver Hail Storms

FLIGHTS FLOWN IN US OVER LOSS SITES AFTER HURRICANES, STORMS AND HAIL IN MULTIPLE STATES IN PARTNERSHIP WITH BETTERVIEW

Hurricane Harvey

ADJUSTER FEEDBACK: NOT FOR EVERYDAY CLAIMS USE – BUT USEFUL WHEN DIRTY, DANGEROUS OR DAMAGE IS CLEAR

1 Benefits for Risk Managers

- Quicker assessment of outdoor risks/claims
- Cheaper and quicker assessment of roof damage
- View damage at Nat Cat location before human can

2 What Kind of Claims

- Roof damage
- Hail storms
- Wild fire
- Flood
- Earthquake
- Explosions and fires

3 Can be Used in

- Claims that only have outdoor damage
- Roof inspections
- Flood analysis
- Damage inspections of buildings after earthquake
- Hurricane damage inspections
- To fully pay out hail damaged roof claims

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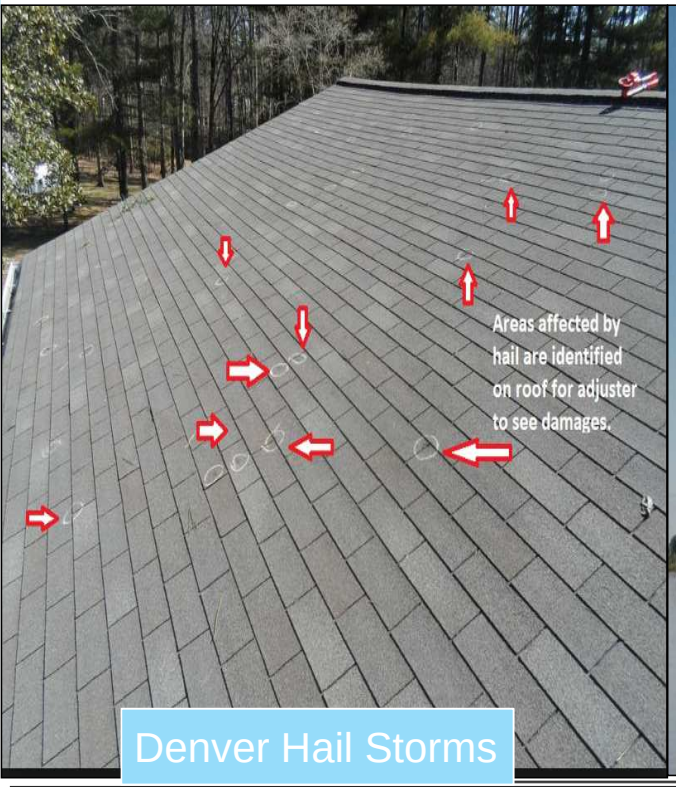

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Philippe Donaint: adjuster's view

We use drones on a regular basis. They allow us to:

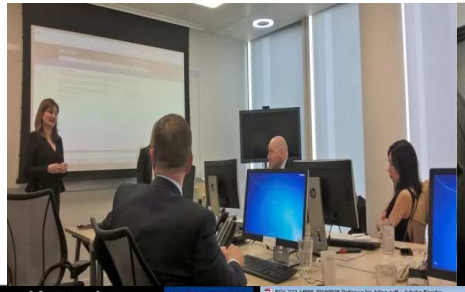
- **Save time when observing damage to large roofs, taking stock of multiple sites and accessing weakened roofs or other hard-to-reach areas,**
- **Access collapsed buildings with ground-based drones,**
- **Present the case to the participants without having to travel,**
- **Preserve information without having to go back to the site,**
- **Additionally, they ensure the safety of all of the participants,**
- **Future potential: combining drones with image recognition, modelling and costing software.**

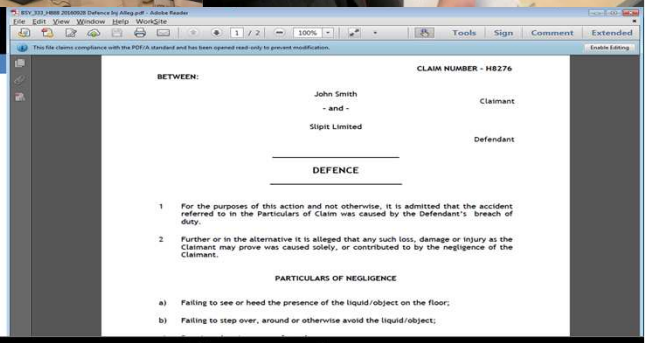
DIGITAL DEFENCE LAWYER TOOLKIT

PILOTED IN UK LIABILITY CLAIMS DEPARTMENT: ENABLED US NOT TO INSTRUCT LAWYERS

The Allianz Digital Lawyer Tool Kit:

- It saves you time
- Reduces cost
- Increases efficiency and,
- Delivers better outcomes





1 Benefits for Risk Managers

- Save money on lawyer costs
- Create legal documents quicker than using outside lawyers
- Empower staff to undertake legal work tat they did not previously do

2 What Kind of Claims

- Liability
- Aviation liability
- Marine liability
- MidCorp
- Subrogation

3 Can be Used in

- Hi-low claims
- Mid-level claims
- Simple claims
- Litigations up to any hearing

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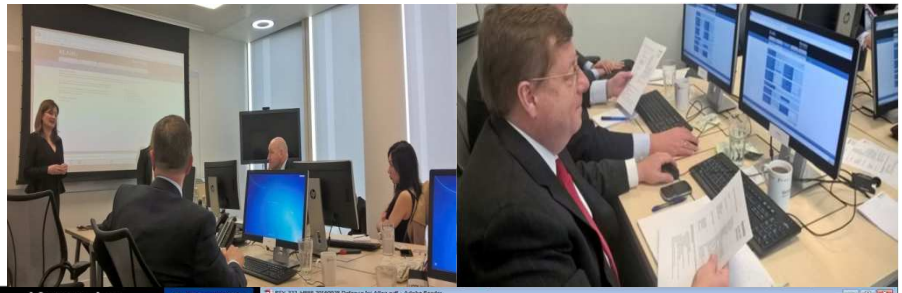
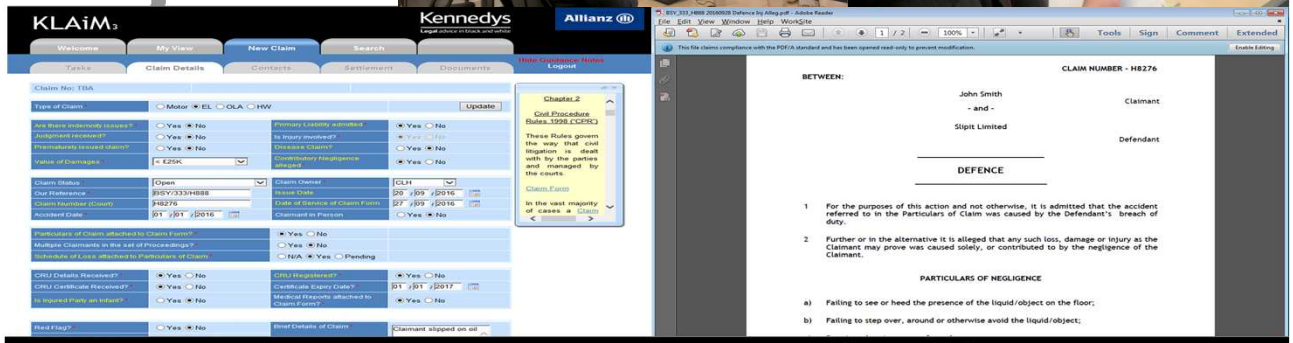




Philippe Donaint: adjuster's view

ARTIFICIAL INTELLIGENCE TO COURT-APPRAISED FILES

- **Text recognition has been around for a long time. What's new, however, is the addition of an automated feature (AI) to accelerate processing, orientation, qualification...**
- **We use it to sort through incoming e-mails. This is essentially a process improvement, allowing us to accelerate file treatment while increasing reliability. It frees up time for other things. And we all know loss adjusters never have enough time.**

MODELLING

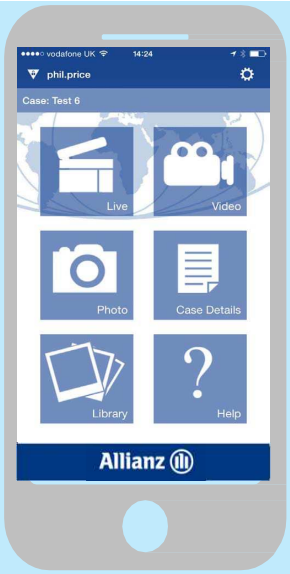
- **We're seeing the use of a lot of decision trees/models, and we're using them too. Aside from just the feedback from our assignments, we've also created various models to help us identify root causes. This helps loss adjusters make their decisions.**

Allianz LIVE STREAM CLAIMS APP AND DIGITAL MEDIA HUB

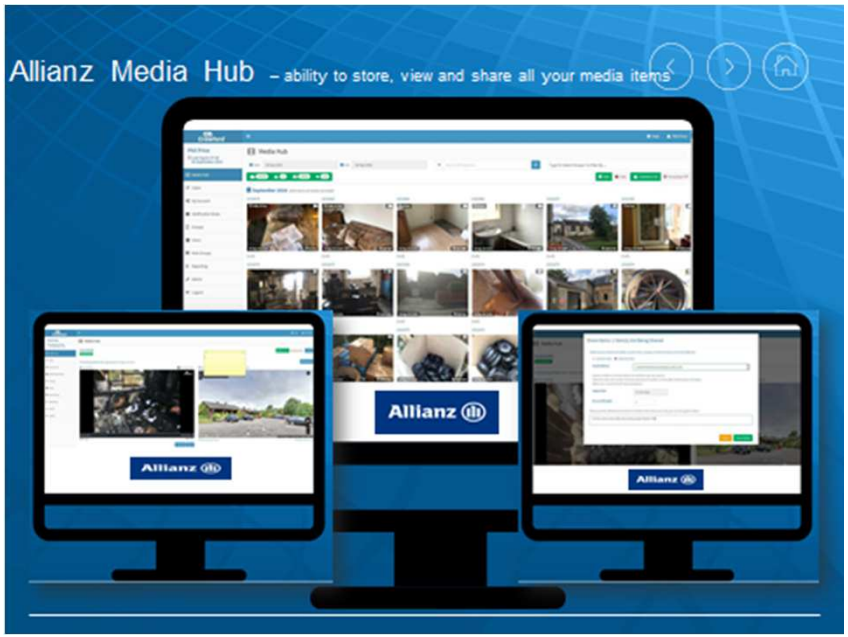
AN OVERVIEW OF THE NEW CLAIMS TECHNOLOGY

Our aim was to create something simple and easy to use

Using hardware that everyone already uses day-to-day



Smart Phone App
Live Stream Adjusting



1 Benefits for Risk Managers

- Notification to your phone as a claim is happening
- Digital media collection and storage
- Desk-top adjustment of small claims
- Receive from your insurer instant loss advice, assessment and mitigation on large claims
- Virtual video visit of site visit when appropriate

2 What Kind of Claims

- Property
- Engineering
- Energy
- MidCorp
- Liability
- Marine
- Entertainment
- CrisisManagement
- EIL
- Others…?

3 Can Be Used In

- For all virtual risk assessments
- In all claims situations
- Taking evidence and storing of it in case of a future dispute
- To document health and safety

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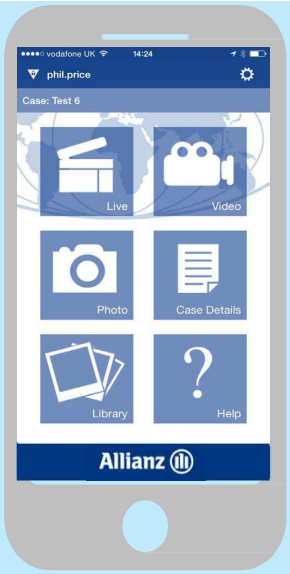

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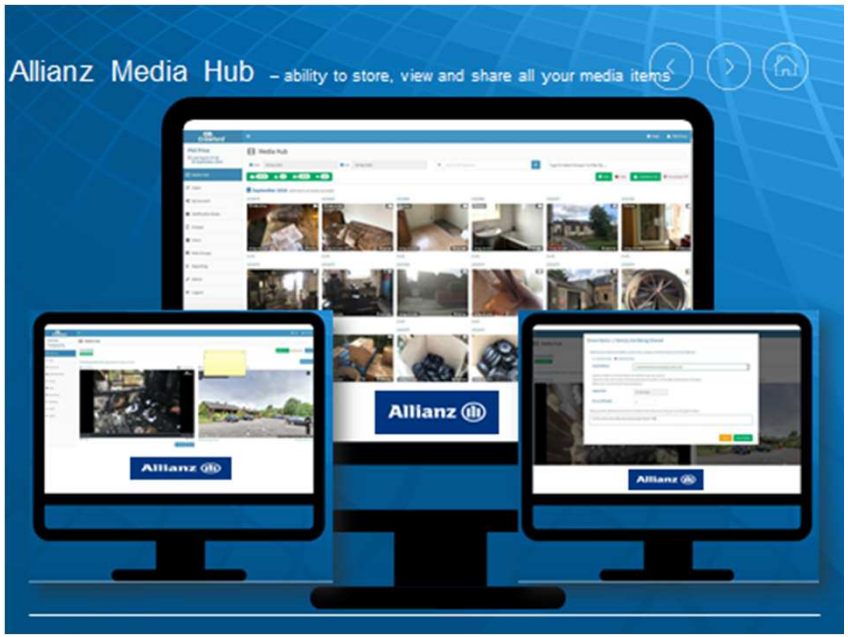


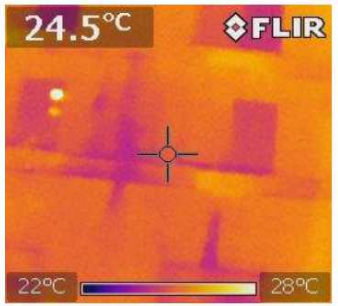
Philippe Donaint: adjuster's view

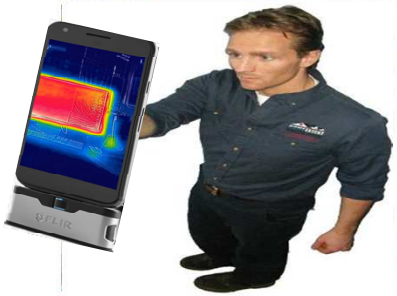
- **It's already a standard tool which we use regularly. What is more interesting is its potential: used in conjunction with custom AI, video tools can use smart image recognition to conduct a virtual costing.**
- **It is, for example, what we're developing with STELLIANT with the DIGICLAIMS tools. Automatic costing for simple losses is already operational, and is already being combined with video and image recognition.**

CLAIMS ARC INFRARED THERMOGRAPHY INITIATIVE

NORTH AMERICAN PILOT UPDATE:

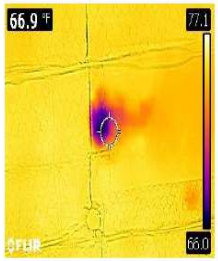
Water intrusion in **EIFS** exterior after Hurricane Irma, picture was taken several days after hurricane





Residual moisture from flooding could not be seen with naked eye

Unexpected moisture at ceiling was noticed when we were looking for evidence of flooding



Calgary Floods 2017

1 Benefits for Risk Managers

- Receive payment for claims you did not know you had
- Faster claim inspections
- Accelerate water damage assessment and reduce the potential for missing affected areas
- Providing evidence of construction defects

2 What Kind of Claims

- Property
- Engineering
- Liability
- Inland Marine
- MidCorp

3 Can be Used in

- Turbine claims
- Transformer claims
- Solar panel claims
- Electrical claims
- Water damage claims

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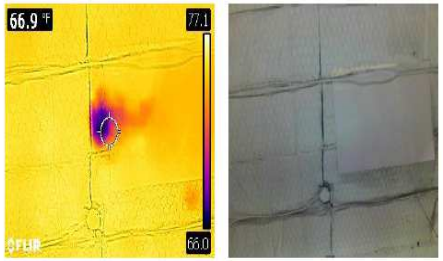


Calgary Floods 2017

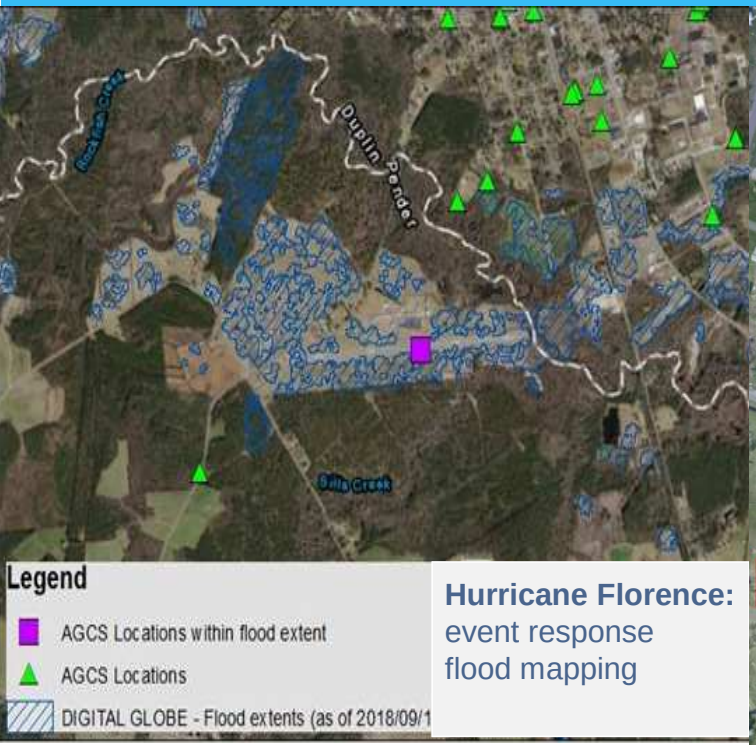
Philippe Donaint: adjuster's view

These are great tools, and are part of the basic kit we provide to our loss adjusters!

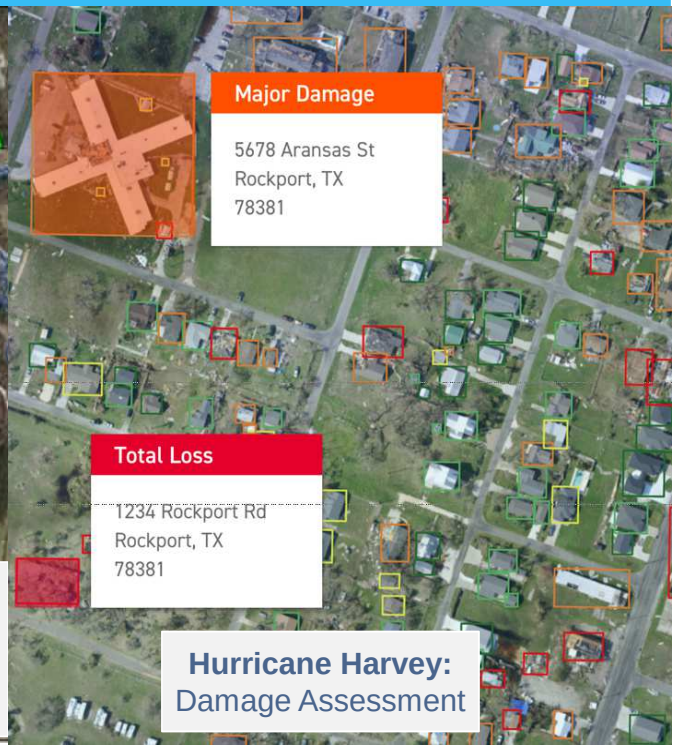
SATELLITE IMAGERY ANALYTICS: TRANSFORMING INSURANCE THROUGH AERIAL INSIGHT

- **Nat Cat Response : assess damage to insured locations in real time during and immediately after a Nat Cat event: with AI reserving estimates within 24 hours. View damage from your desk via secure web portal.**

- **Claims Adjustment : direct loss adjusters, inform insureds, start loss mitigation measures, receive AI property loss value estimations, BI/CBI predictions and enable STP payments.**



Hurricane Florence: event response flood mapping



Hurricane Harvey: Damage Assessment

1 Benefits for Risk Managers

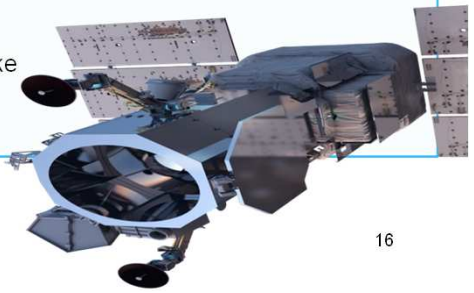
- View any of your locations from your desk
- During Nat Cat event view situation as it develops at your insured location
- Hurricane: plan and instigate measures to mitigate business interruption before employees have returned to facility

2 What Kind of Claims

- Property
- Engineering
- Inland Marine
- MidCorp

3 Can be Used in

- Hurricane
- Wild fire
- Flood
- Earthquake



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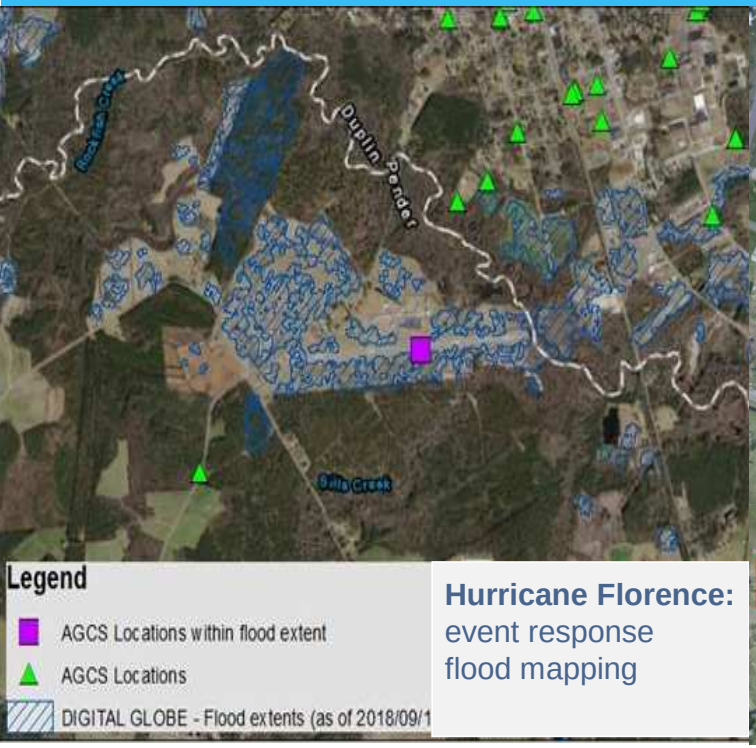

Hurricane Florence:
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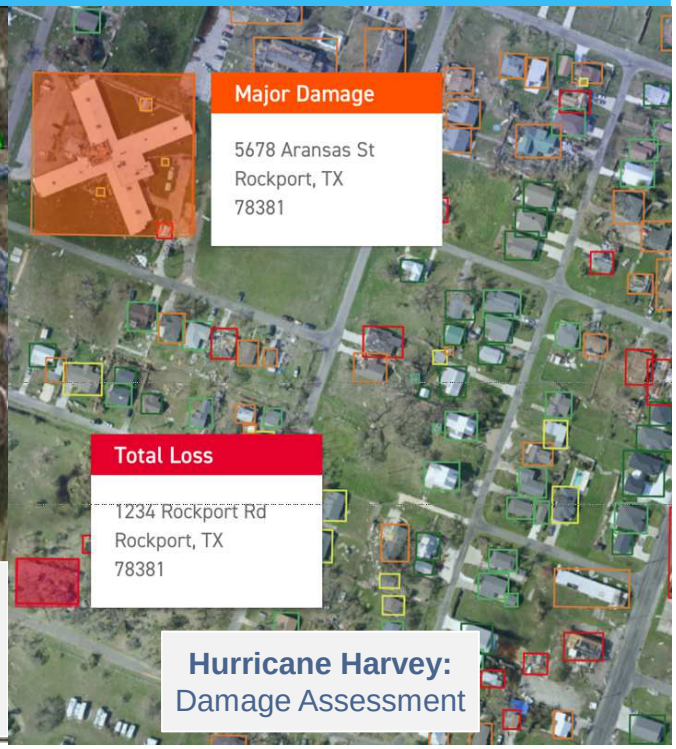
flood mapping



Hurricane Harvey:
Damage Assessment

Philippe Donaint: adjuster's view

- **We're currently experimenting with this tool, alongside companies such as VisioTerra.**
- **There are two key advantages about this:**
- **Large-scale: we can make an initial judgement from an aerial view. This can give us a good overview of structural damage.**
- **Where it can be more useful, however, is when buildings have been completely destroyed and we have a prior valuation of the contents. We can take a satellite image to estimate the total damage without having to send in any loss adjuster.**
- **Although, clearly, this will only apply to a few cases.**
- **Additionally, this is less useful for complex technical risks than to relatively simple individual ones.**

DIGITAL COLLABORATION PLATFORM

One single digital record

Insurers' technology not suppliers

Any Claim Participant

Insurer

User Permissions

Automation

Workflow

Permissions Structure

Templating

Client-Configurable

BI/MI including Unstructured Data

Video

Email

Imagery

Any document or file type

Smartphone

Tablet

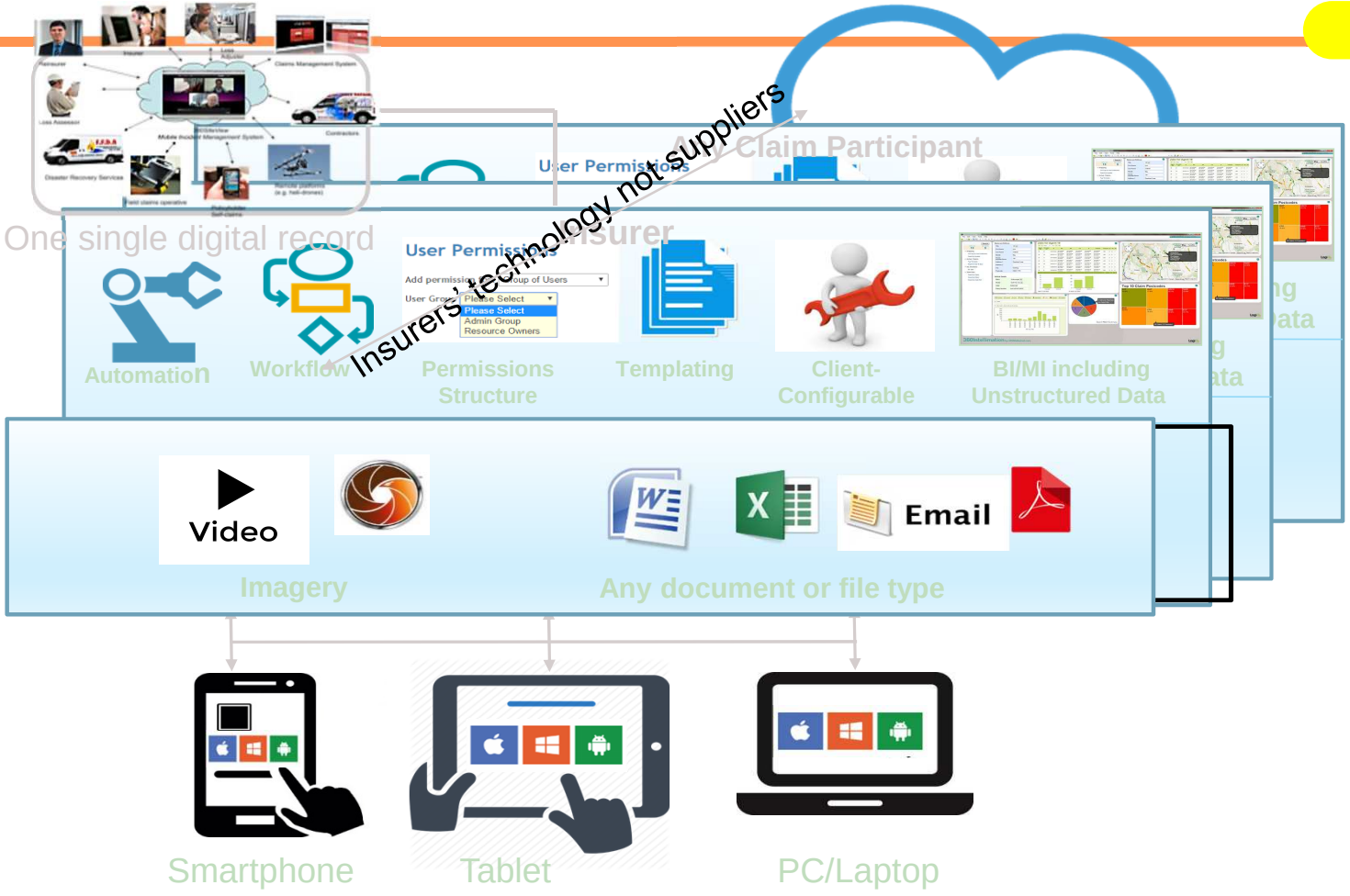
PC/Laptop

Global Collaboration Platform :

- Delivers a Net Promoter Score (**NPS**) of **76**
- Small claim **withdrawals** over **35%**
- **Customer satisfaction** at **9.8/10**
- **Mid complexity** claim **withdrawals 7%**
- Indemnity cost reduction 17%
- **24/7/365 service**. Earliest visit 05:58 hrs. Latest 22:50 hrs
- Major UK Insurer gross **savings** of **EUR 30m** pa
- **Cycle times** reduced by **50%.** Enable decisions on day 1

Allianz UK : *"Our Customer and Broker feedback is very good, with positive comments received in an embedded customer satisfaction survey, about the ease of use and intuitive nature of the customer journey (all locally configured and managed). We recently moved our motor journey from a competing digital media capture platform (VueCloud) onto the SiteView system and instantly started to receive positive feedback from Brokers on the change."* (**4000 claims processed**)

DIGITAL COLLABORATION PLATFORM



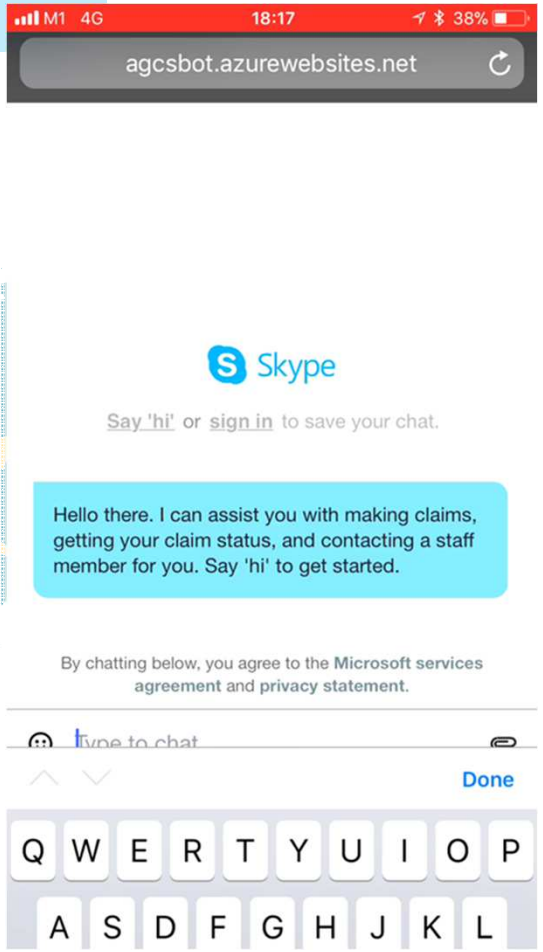
Philippe Donaint: adjuster's view

- The digital platform allows us to give clients a 100 % end-to-end digital experience, which combines all of the technology we've seen up to now: robotics, chatbot, AI, video, etc. This has become standard, even though 100% digital systems remain very much the minority. Clients still appreciate working directly with actual people.
- Of course, this applies mainly to private losses or smaller direct-damage type losses. It allows loss adjusters to focus on more complex issues rather than "minor" losses, and of course, there are advantages for the client (see NPS 76). I talked about DIGICLAIMS, which is an example of a digital system with an NPS of more than 80 %.

AGCS CLAIMS CHATBOT

DEVELOPMENT OF PROOF OF CONCEPT

- Three **intents** discussed:
  - Obtaining contact details
  - Submitting a claim
  - Getting a claim status
- **Policy** and **claims referencing** logic used to identify the AGCS office and the line of business
- Database of claims handlers with details of their location and line of business focus
- Information entered by the user analysed by the bot and emailed to the appropriate claims handler
- Bot built with **Skype integration** for use on **multiple platforms** (PC, mobile, tablet).



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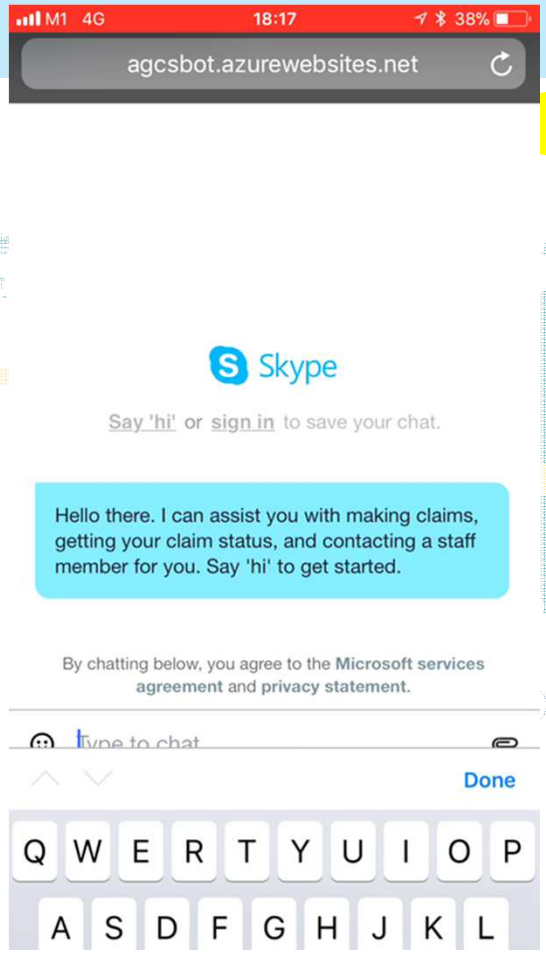


Philippe Donaint: adjuster's view

- **Callbots and chatbots can be used to set up a simple FAQ (Frequently Asked Questions), although some take the idea a little further. It means the loss adjuster or the assistant doesn't have to field the most common questions. And the client has an immediate answer to their question as a chat or voice call.**
- **With STELLIANT, we're currently rolling out callbots to help out the Client Services space with the most commonly asked questions. This includes, for example, the documents to prepare, when the loss adjuster is scheduled, when the report will be ready and other questions.**

CLAIMS AND DIGITILISATION AT AGCS IN 2019

Valuation for fast track

Based on repetitive patterns predict the fair settlement amount and route the claim to either **fast track or fully automated settlement** (Straight Through Processing)

Detecting fraud

Improve fraud detection through usage of various sources of **data and discovering abnormalities** in data patterns that may **indicate fraud**

Complexity scoring

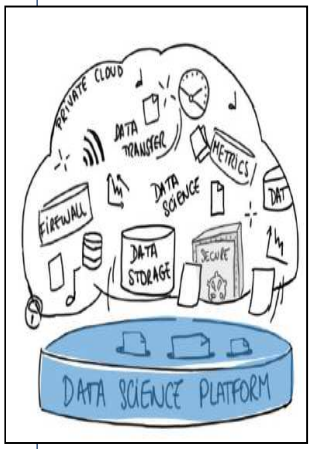
Calculate a complexity score (e.g. propensity for litigation, need for surveyor assignment) to **assign claims** with a high score to more experienced adjusters

Subrogation potential

Increase the recovery rate with automated ranking of claims with respect to their subrogation potential

Data Ingestion & Data Exploration → Machine Learning & Rapid Prototyping → Continuous Deployment

Using **data**, statistical **algorithms** , **machine learning**, **Artificial Intelligence** and **analytics** we want to identify the likelihood of future outcomes in order to augment and accelerate business decision-making



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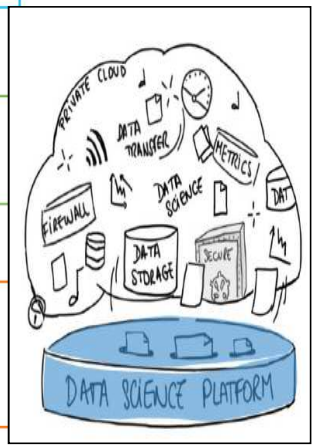


Data Ingestion & Data Exploration → Machine Learning & Rapid Prototyping → Continuous Deployment

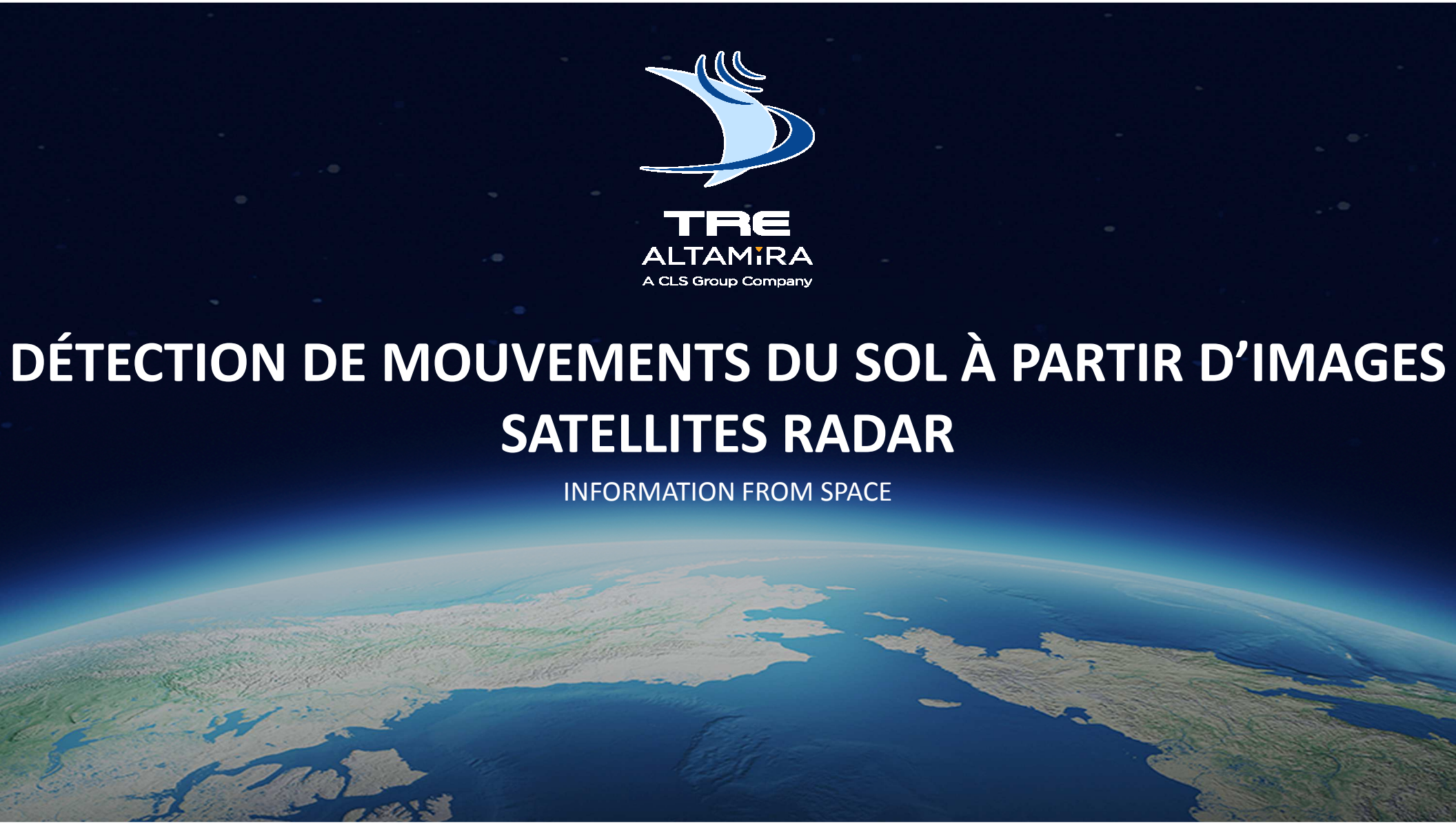
Philippe Donaint: adjuster's view

BIG DATA OR DATA MINING

- **Clearly, loss adjusting firms are sitting on a vast trove of data. It makes sense to use these in two ways:**
- **If you take and analyse factory fire data over the past 20 years, you can identify patterns and causal models which can help the loss adjuster better analyse future losses. This is what companies such as MondoBrain are doing.**
- **At the same time, this knowledge can be used to predict losses before they happen.**

DATA ANALYSIS FOR A FRAUD CASE

- **This is almost a classic by now. Companies such as Shift Technology offer cross-sector analysis. This is more relevant for insurers than for loss adjusters, as they can quickly amortise the costs of these analyses.**

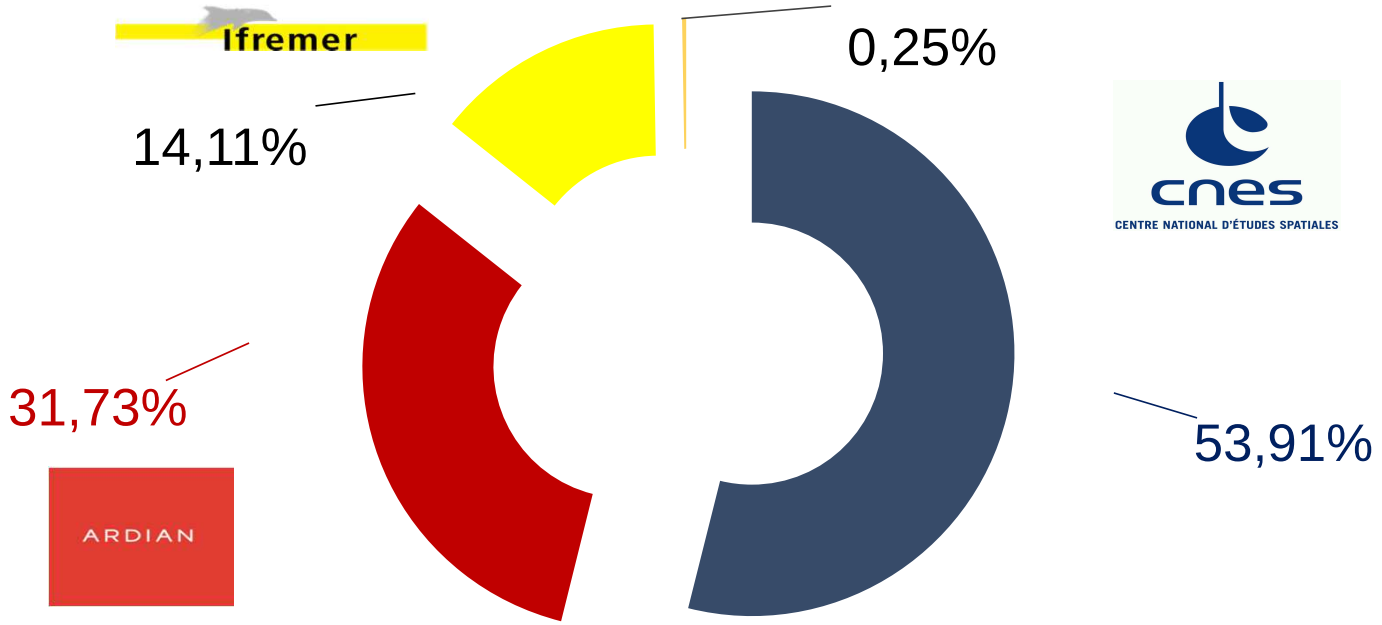


DÉTECTION DE MOUVEMENTS DU SOL À PARTIR D'IMAGES SATELLITES RADAR

INFORMATION FROM SPACE

PRÉSENTATION TRE ALTAMIRA – GROUPE CLS

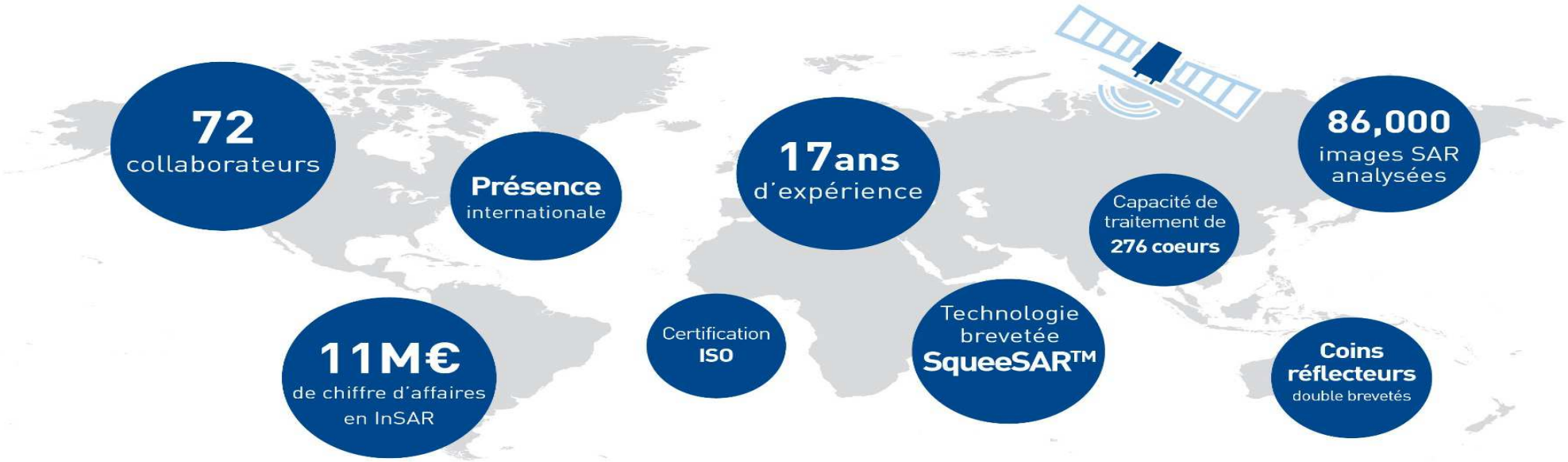
Actionnariat Groupe CLS



PRÉSENTATION TRE ALTAMIRA – GROUPE CLS

Leader en Interférométrie radar

TRE ALTAMIRA: Leader mondial dans la mesure millimétrique de mouvement du sol à partir d'images satellite radar



PRÉSENTATION TRE ALTAMIRA – GROUPE CLS

Les secteurs d'activité

Infrastructures

- Planification, construction et maintenance.
- Suivi de projets d'infrastructures (voie ferrées, barrages, ponts..)

Mines

- Surveillance mines à ciel ouvert
- Surveillance mines souterraines
- Abandon minier

Pétrole et gaz

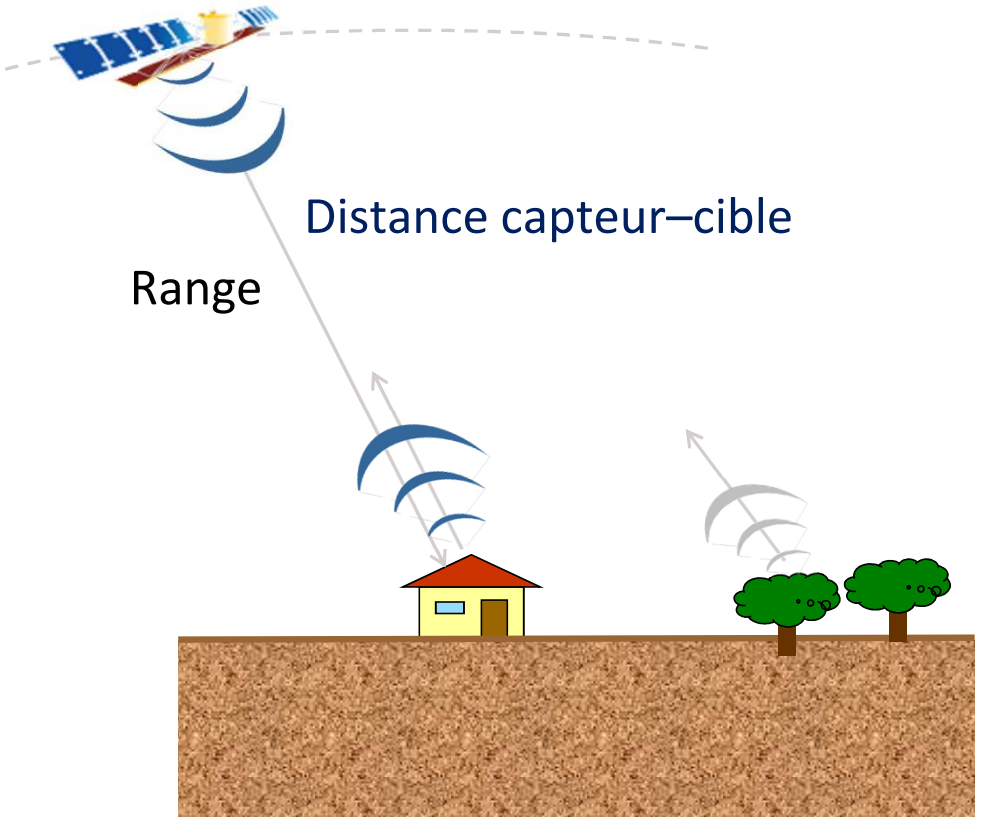
- Gestion et surveillance des réservoirs (exploitation et stockage de gaz) et infrastructures
- Plateformes offshore, Terminal GNL.

Institutionnel

- Réduction des risques naturels
- Optimisation de la sécurité
- Service d'information des risques naturels (inondations, changement climatique..)

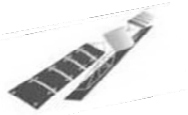
LA MESURE DES MOUVEMENTS DE SURFACE

Principes de la technologie InSAR (1/2)

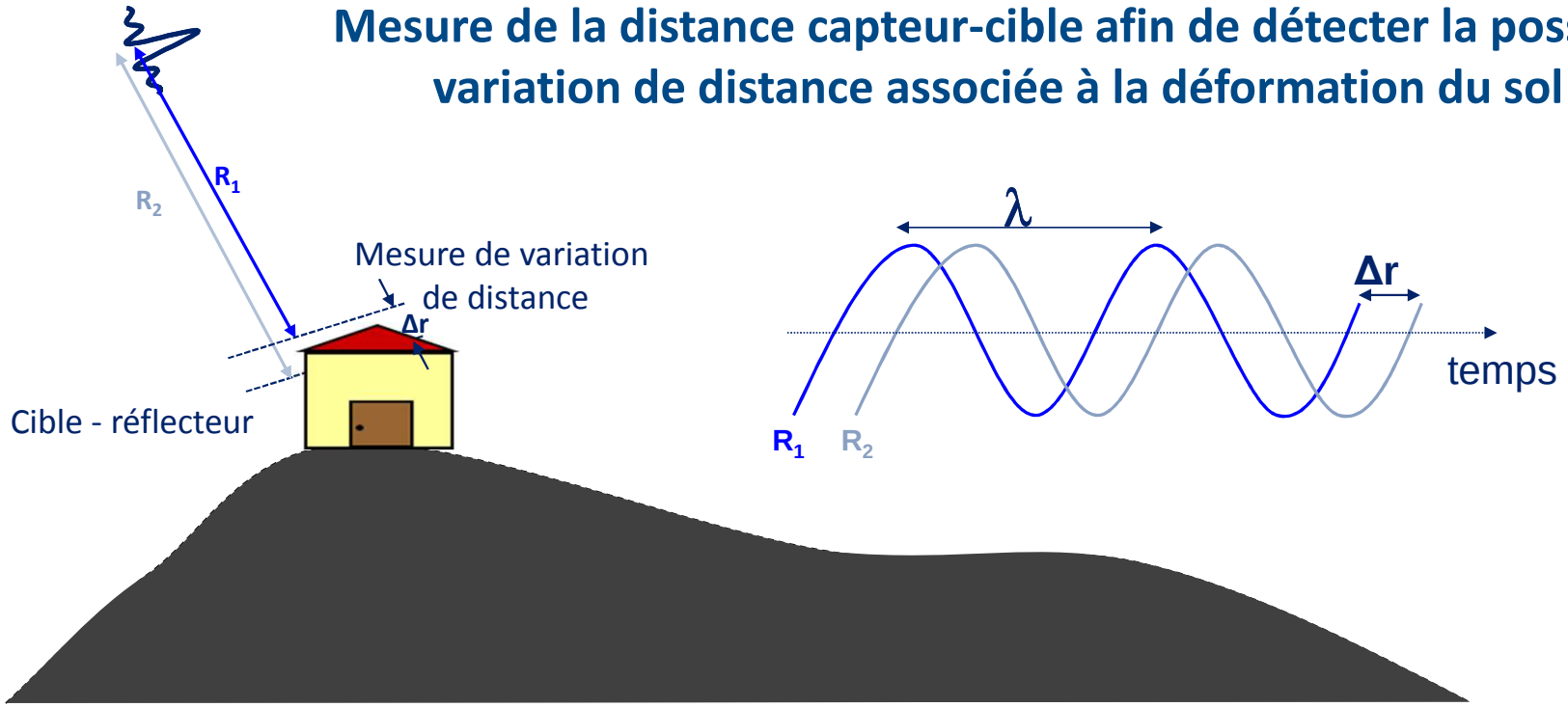


LA MESURE DES MOUVEMENTS DE SURFACE

Principes de la technologie InSAR (2/2)



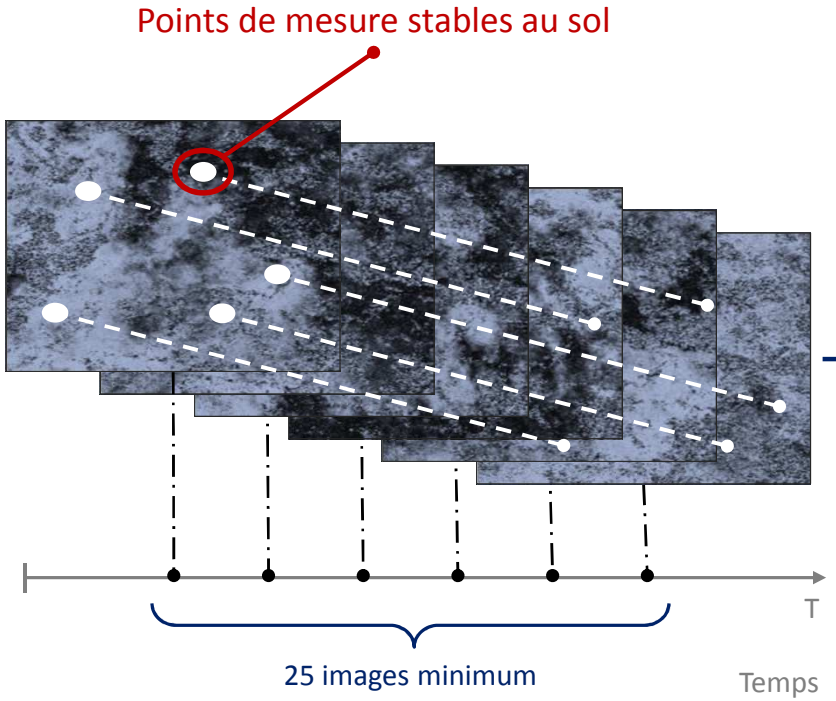
Mesure de la distance capteur-cible afin de détecter la possible variation de distance associée à la déformation du sol

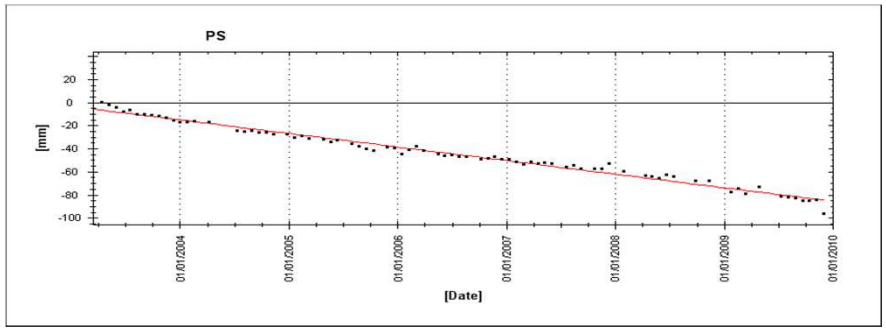


Interférometrie (InSAR): comparison entre images radar → variation de distance

LA MESURE DES MOUVEMENTS DE SURFACE

Interférométrie avancée et algorithme SqueeSAR™





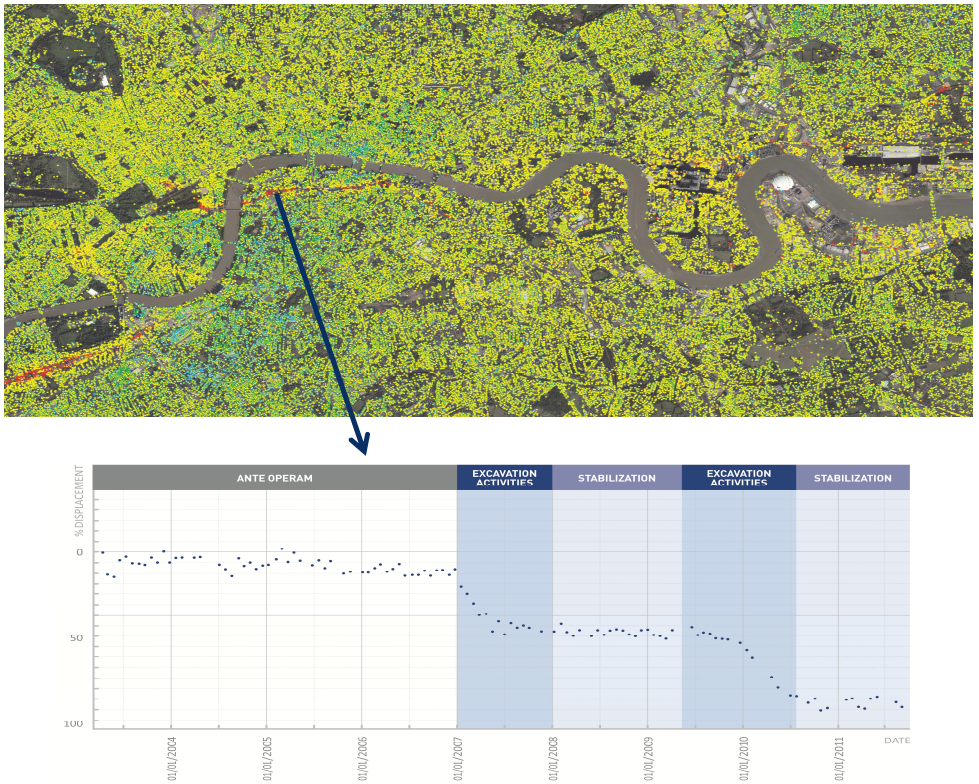
Série temporelle présentant l'évolution du mouvement dans le temps

LA MESURE DES MOUVEMENTS DE SURFACE

Les résultats du traitement SqueeSAR™

Une analyse SqueeSAR™ fournit les informations suivantes pour chaque point de mesure :

- **Position** dans un système de coordonnées spécifique [m],
- **Taux de déplacement moyen annuel** [mm/an],
- **Séries temporelles de déplacement** qui montrent l'évolution du déplacement du point de mesure sur la période considérée [mm].



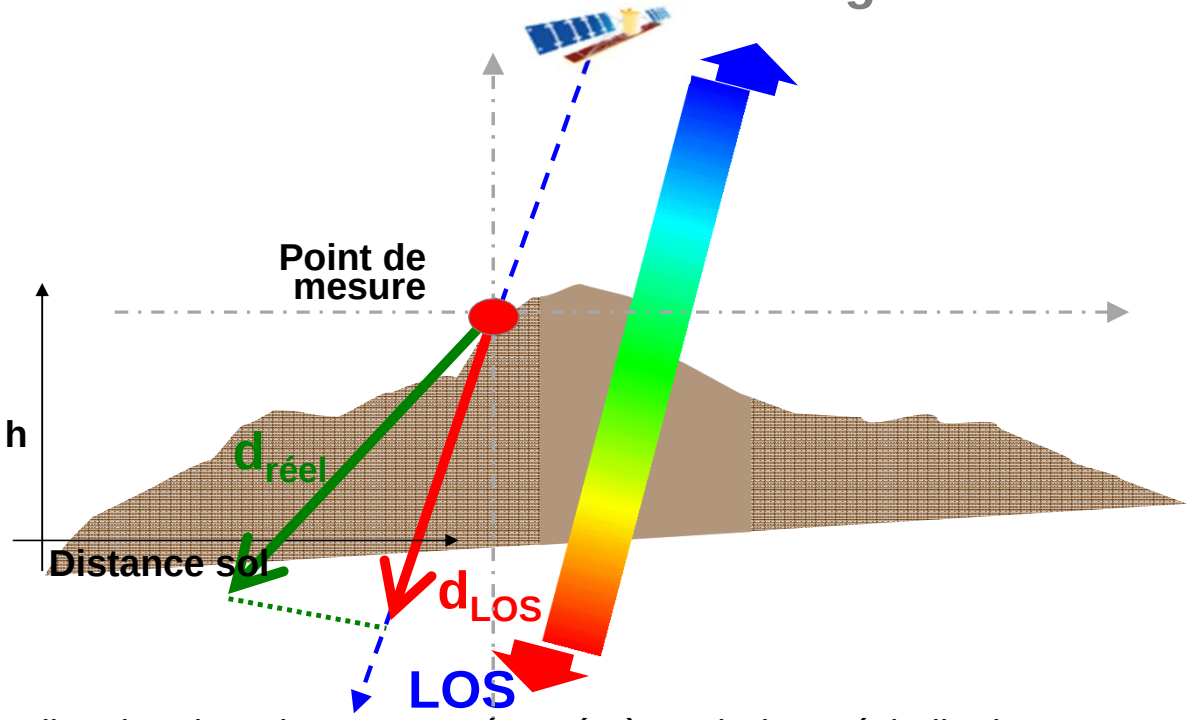
Série temporelle de déplacement

LA MESURE DES MOUVEMENTS DE SURFACE

La mesure dans la ligne de visée

» Les satellites radar mesurent les mouvements dans le plan image du radar, c'est-à-dire dans la direction de leur ligne de visée (*Line-of-Sight* en anglais ou *LOS*).

» La *LOS* est la direction en laquelle le capteur regarde la surface de la Terre.



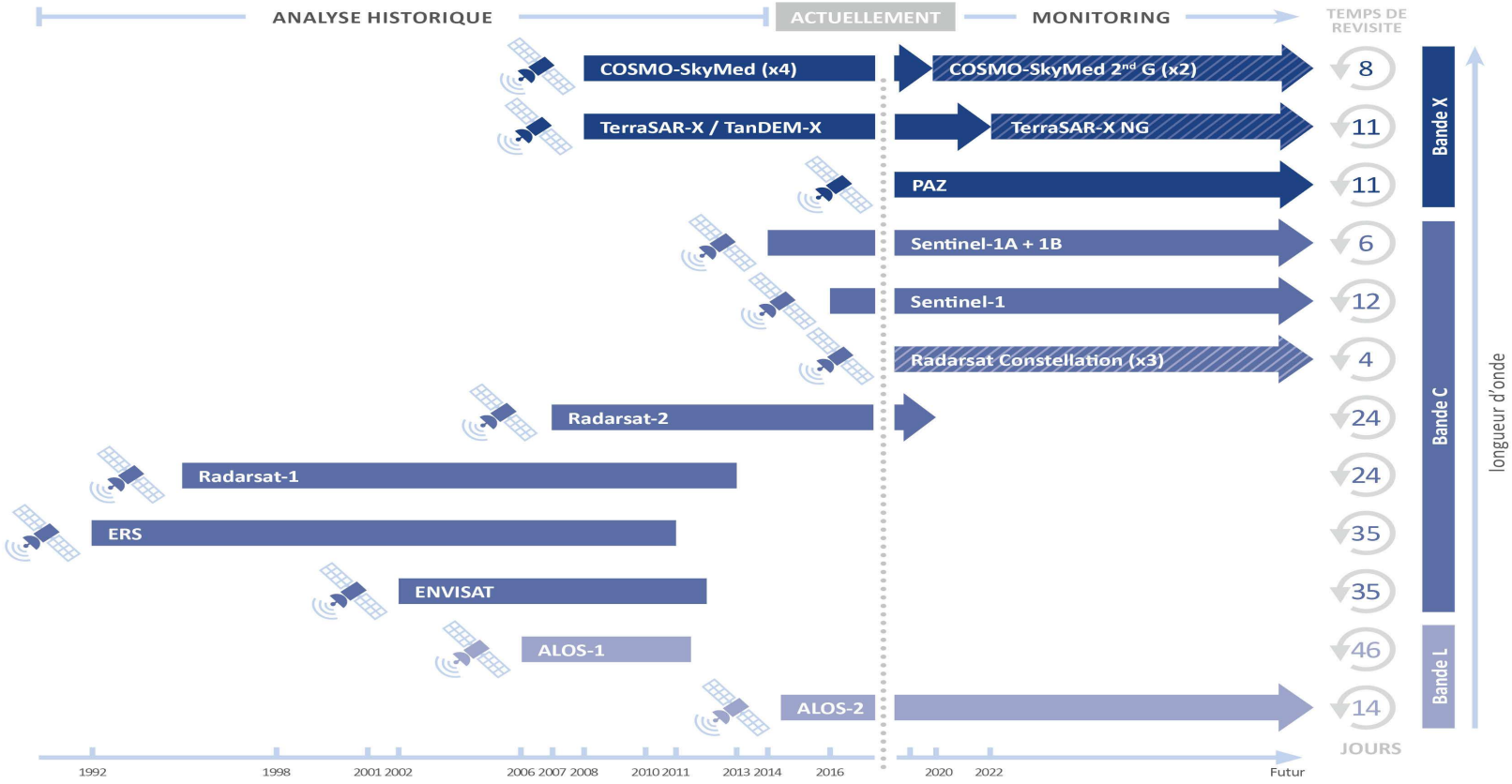
Les points de mesure qui se déplacent en direction du radar sont représentés à partir d'une échelle de couleur variant du cyan au bleu foncé.

Les points de mesure qui ne montrent aucun mouvement sont codés en vert.

Les points de mesure qui s'éloignent du satellite sont représentés à partir d'une échelle de couleur variant du jaune au rouge.

LA MESURE DES MOUVEMENTS DE SURFACE

Les missions radar



LA MESURE DES MOUVEMENTS DE SURFACE

Référence et précision de la mesure de déplacement

- Les mesures InSAR sont relatives à un point de réference sélectionné durant le traitement à partir de ses caractéristiques (bonne réfectivité radar, bons paramètres de qualité….).
- L'information sur la précision de la mesure est donnée à partir de la valeur d´écart-type.
- Les valeurs standard d'écart-type pour un traitement haute résolution sont les suivantes:

Vitesse moyenne de déplacement	± 1-2 mm/an
Mesure individuelle de déplacement	± 3-4 mm

Valeurs théoriques pour un jeu de données de plus de 40 images acquis sur une période minimale de 2 ans

Rencontres 2019

ETUDE DE CAS CONSTRUCTION
TACOMA RESCUE MISSION

TACOMA RESCUE MISSION
Contexte du litige

Objectifs du projet	- Réaliser un historique InSAR pour un état des lieux des mouvements du sol affectant un bâtiment avant la construction d'une ligne de tramway - Déterminer les responsabilités dans le cadre d'un litige

Contexte

- Concession d'un terrain par l'état de Washington pour la construction d'un refuge géré par une association: The Tacoma Rescue Mission.
- Zone de concession située dans un ancien lit de rivière; zone potentiellement instable. Recommandations de fondations profondes non suivies pour raison économique.
- En 2011, construction d'un tramway à proximité du refuge.

Litige

- Suite à l'apparition de fissures sur le bâtiment, le bâtiment est évacué. The Tacoma Rescue Mission poursuit la société de Génie Civil en charge de la construction.
- Le cabinet d'avocats de la défense a recours aux services de la société Aspect Consulting (experts en géotechnique) qui à son tour considère l'interférométrie satellite radar pour retracer l'historique des mouvements dans le passé.
- Une étude ENVISAT (2003-2010) est réalisée sur le bâtiment en question et les infrastructures avoisinantes.
- Les résultats InSAR sont corrélés avec les données géologiques

TACOMA RESCUE MISSION

Zone d'intérêt et période d'étude (1/2)

Tacoma Rescue Mission buildings

Bâtiment voisin

2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

Jan 2003

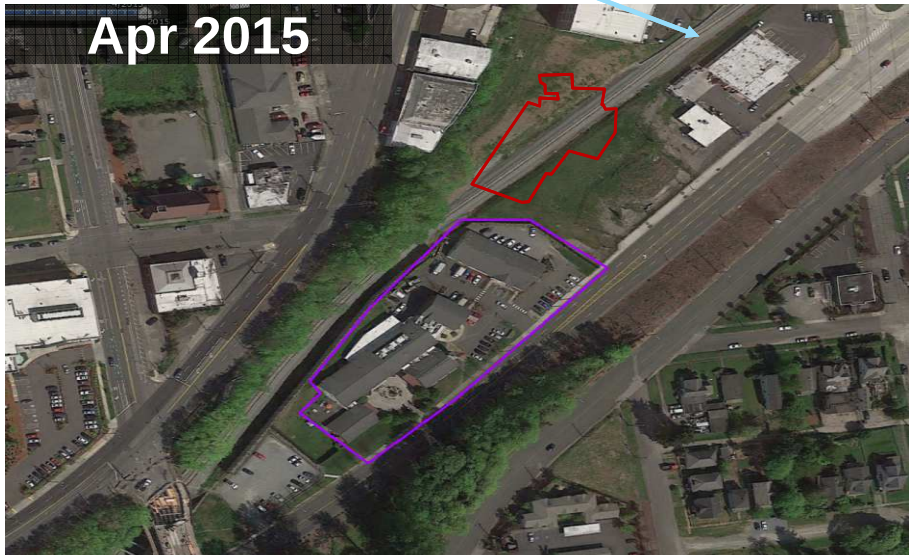
Study

Sept 2010

TACOMA RESCUE MISSION

Zone d’intérêt et période d’étude (2/2)

Sound Transit: Light Rail (Construction 2011-2012)



Orthophotos illustrant les changements de surface sur la zone d’intérêt

TACOMA RESCUE MISSION

Extraits de presse

The mission claims the settling ground, most of which happened between late 2011 and late 2012, is a direct result of construction of Sound Transit's commuter rail line, which runs just behind the organization's property. During the decade before Sound Transit laid its tracks, they say, the building never had a problem.

Sound Transit, meanwhile, "does not believe our construction activity caused the damage ... based on a thorough review of design and construction documentation, on-site inspections and observations," according to spokeswoman Kimberly Reason. It's Sound Transit's belief that the Rescue Mission "did not construct its building in accordance with its own designers' recommendations."

Tacoma Rescue Mission's lighthouse goes dark

Who is to blame for the sinking, and who should pay to fix it, is the subject of litigation between Sound Transit and the mission.

Mission officials say the building experienced normal settling for its first 10 years. But things changed when Sound Transit laid rail for its commuter trains a stone's throw from the mission.

The landmark building showed dramatic settling shortly after excavation began in 2011, Johnson said.

Sound Transit argues that its project didn't cause the settling.

"Our investigation to date indicates that the Rescue Mission did not construct its building in accordance with its own designer's recommendations," Sound Transit spokeswoman Kimberly Reason said.


TACOMA WEEKLY .com

YOUR COMMUNITY NEWSPAPER - 26 YEARS OF SERVICE

TACOMA RESCUE MISSION'S LIGHTHOUSE TO BE REMOVED

FUTURE OF LIGHTHOUSE RESTS ON LEGAL DISPUTE WITH SOUND TRANSIT

INCUMBENTS LEAD IN EARLY ELECTION RETURNS

VOTERS SEEM SOURED BY COUNTY HUB PLANS

TACOMA RESCUE MISSION

Etude de mouvement sur 7 ans – 2003-2010 (1/2)

Vitesse moyenne de mouvement

Ground motion rate [inches/year]

Uplift*
- More than 0.31
- From 0.24 to 0.31
- From 0.16 to 0.24
- From 0.08 to 0.16

Stability

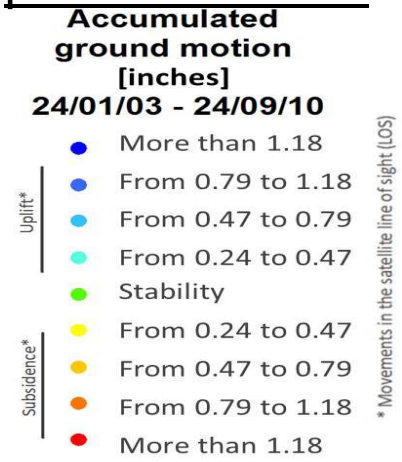
Subsidence*
- From 0.08 to 0.16
- From 0.16 to 0.24
- From 0.24 to 0.31
- More than 0.31

* Movements in the satellite line of sight (LOS)

TACOMA RESCUE MISSION

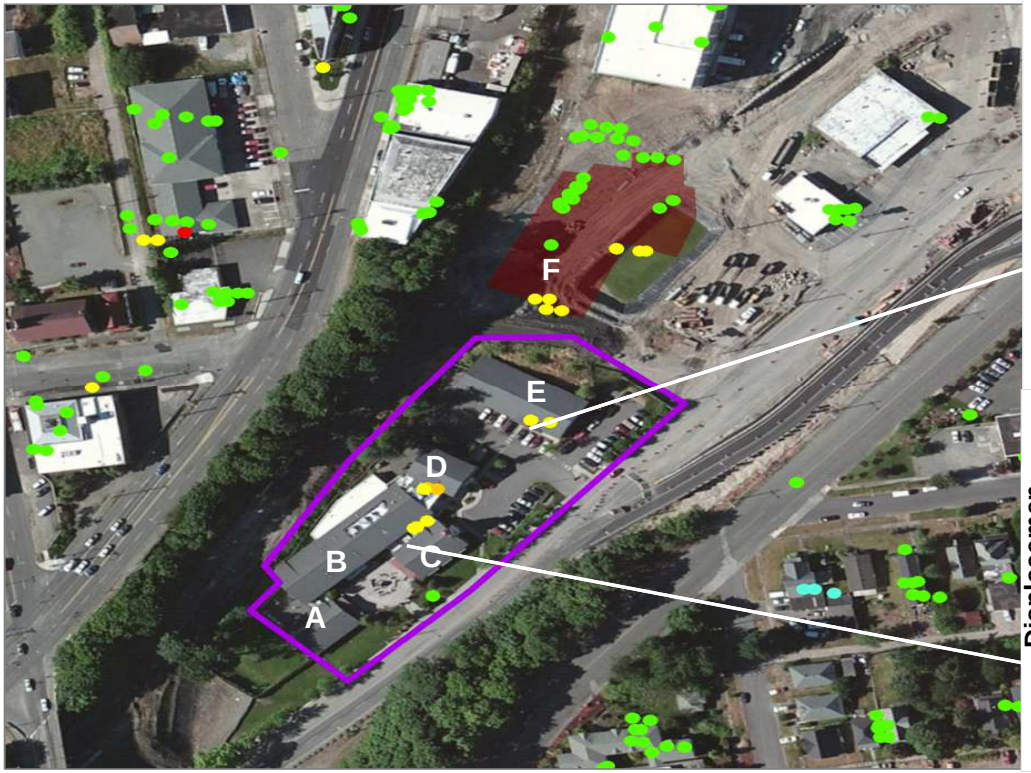
Etude de mouvement sur 7 ans – 2003-2010 (2/2)

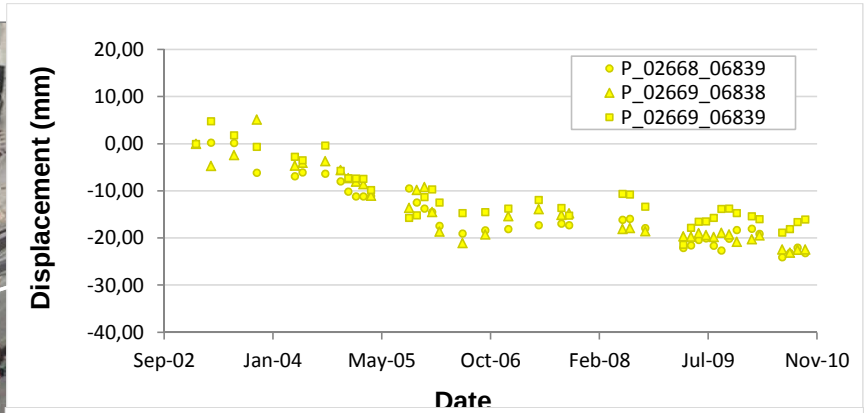
Mouvement cumulé sur la période d'étude

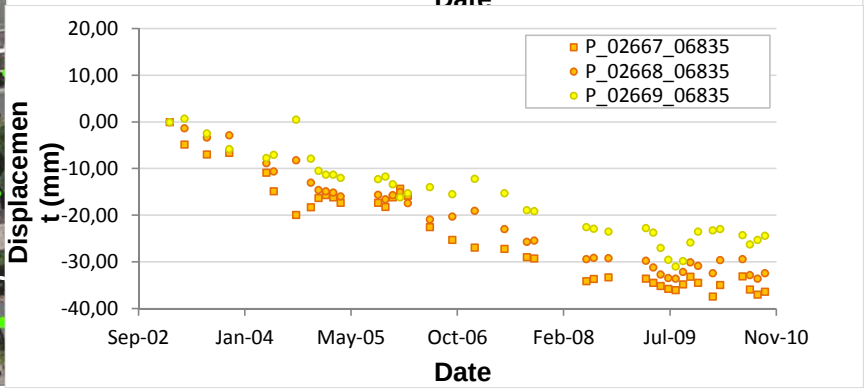


TACOMA RESCUE MISSION

Evolution des mouvements dans le temps







L'étude historique fait état de tassement continu allant jusqu'à 40 mm entre 2003 et 2010

TACOMA RESCUE MISSION
REX

- L'étude InSAR a permis de démontrer l'existence de mouvements continus affectant les bâtiments sur une période de 7 années (2003-2010).
- Les mouvements observés sont antérieurs à la construction de la ligne de tramway (2011).
- Le cabinet d'avocat a fait un retour positif sur l'apport de l'étude interférométrique dans la défense du dossier.
- Le jugement définitif n'a malheureusement pas fait l'objet de communication publique.

Rencontres 2019

ETUDE DE CAS CONSTRUCTION MILLENNIUM TOWER

SAN FRANCISCO MILLENIUM TOWER

Contexte du litige

Objectifs du projet	- Réaliser un historique InSAR pour mesurer les tassements du gratte-ciel Millenium Tower - Etude menée dans le cadre d'un litige

- La tour est située en plein coeur du quartier financier de San Francisco
- La tour a été construite entre 2005 et 2008.
- La structure présente des tassements sur les 7 dernières années et est affectée par un phénomène d'inclinaison.
- Les fondations du bâtiments se trouvent entre 20 et 30m, celles des structures alentours se trouvent à environ 80m, les recommandations de construction ont été suivies.

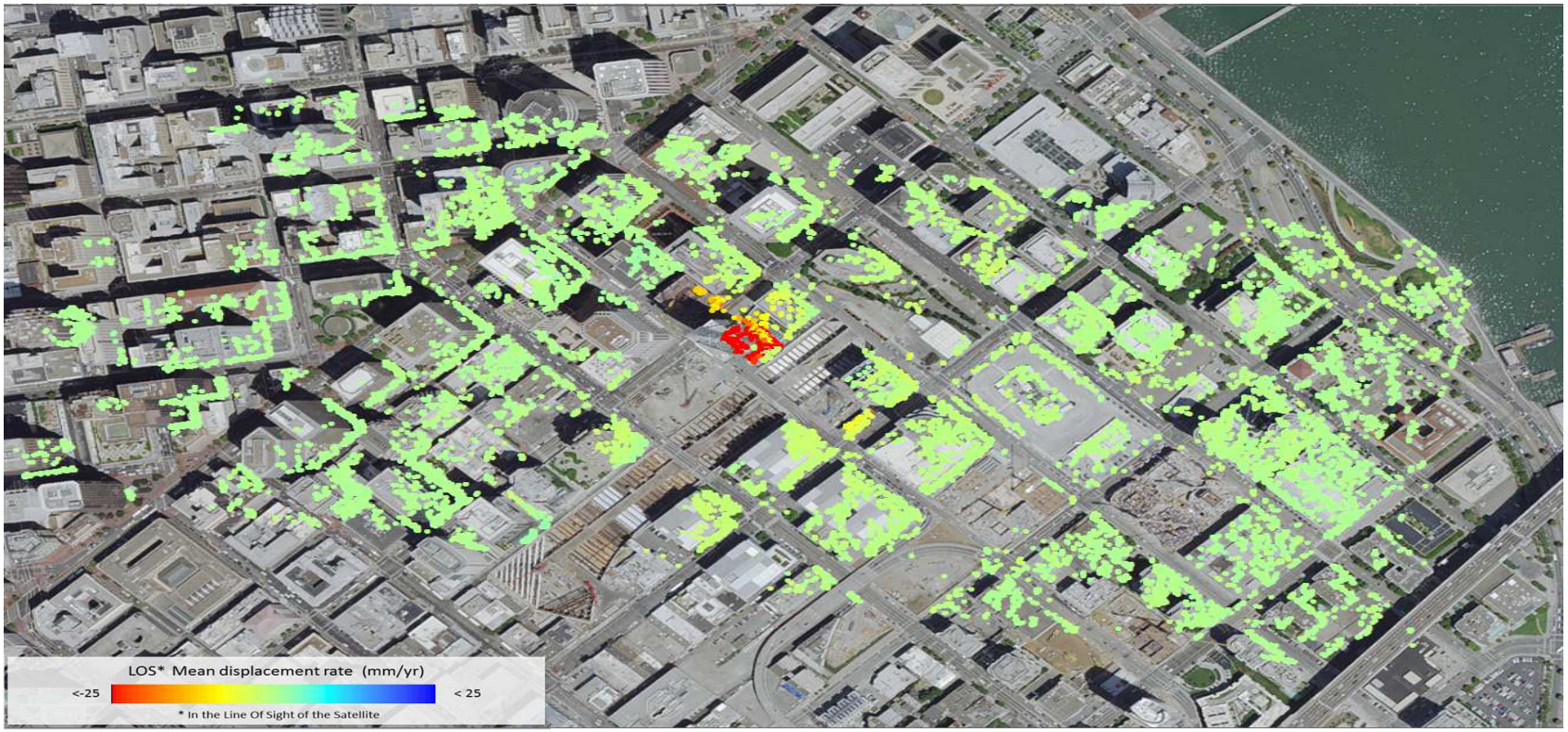
San Francisco's 58-story Millennium Tower is upscale, but literally sinking fast

The building's developers, Millennium Partners, argue that construction nearby is to blame for any sinking or tilting. A transportation hub, the Transbay Transit Center, broke ground next door in 2010, two years after the Millennium Tower was completed.

Google Earth; Melia Robinson/Business Insider

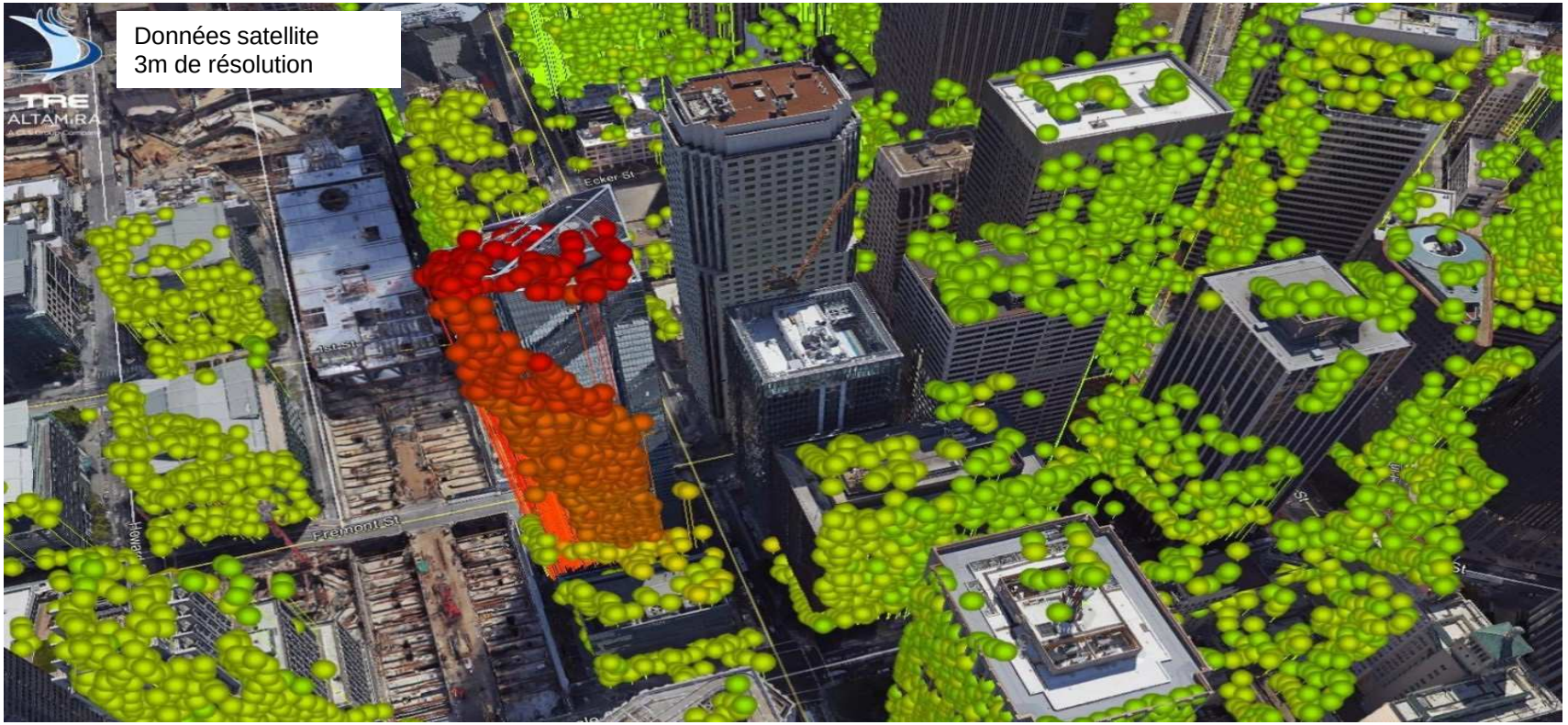
SAN FRANCISCO MILLENIUM TOWER

Etude de mouvement sur 7 ans – 2009-2016 (1/2)



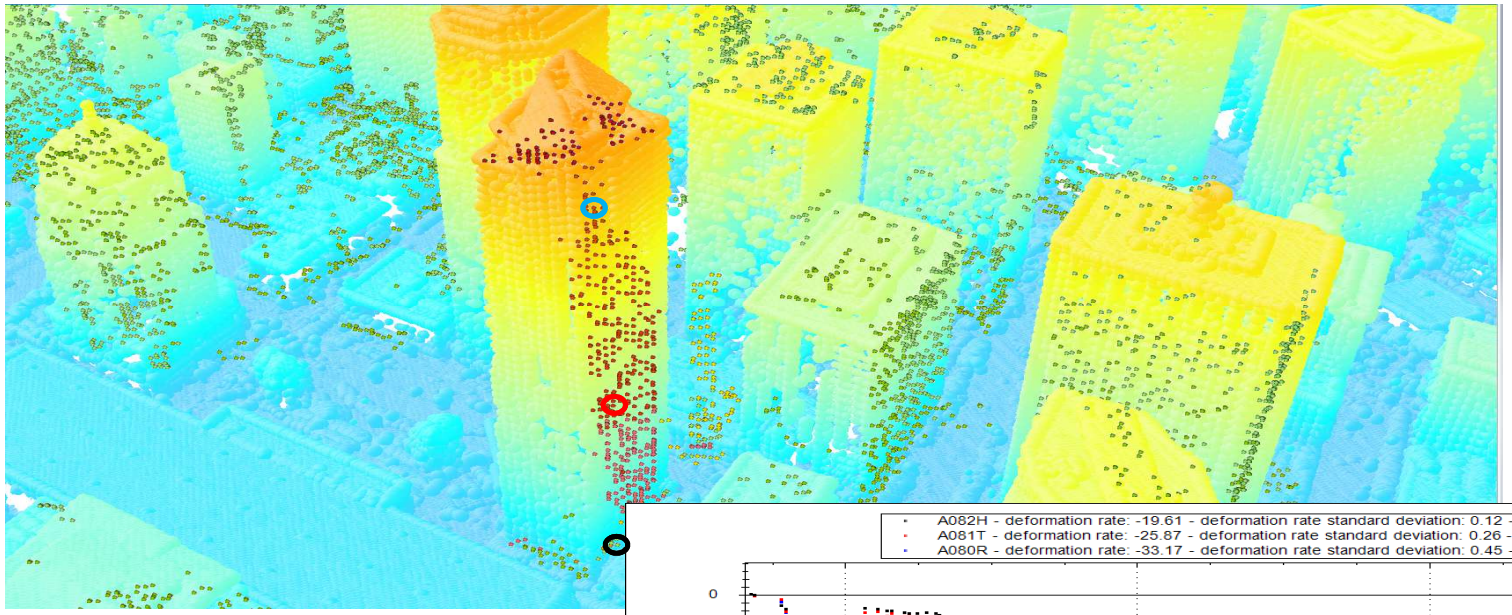
SAN FRANCISCO MILLENIUM TOWER

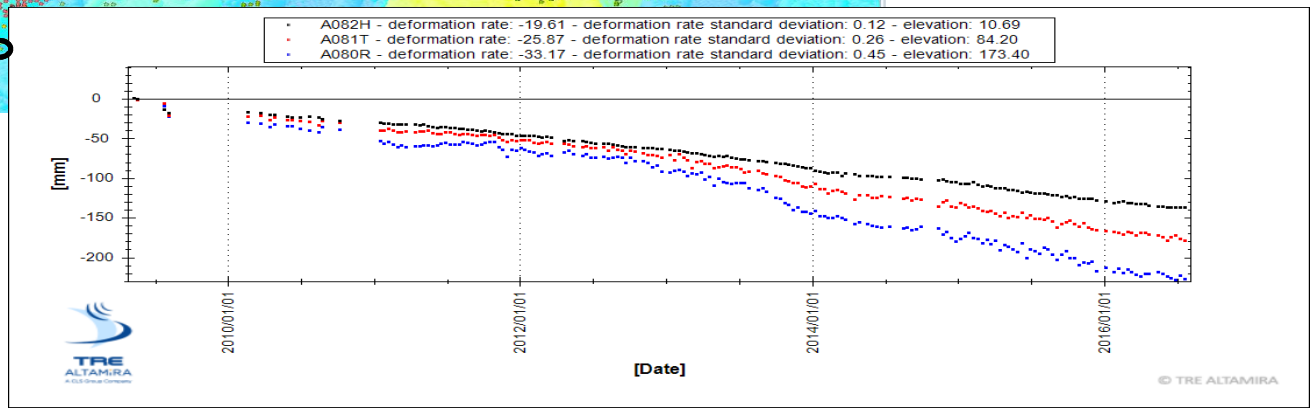
Etude de mouvement sur 7 ans – 2009-2016 (2/2)



SAN FRANCISCO MILLENIUM TOWER

Evolution du mouvement dans le temps



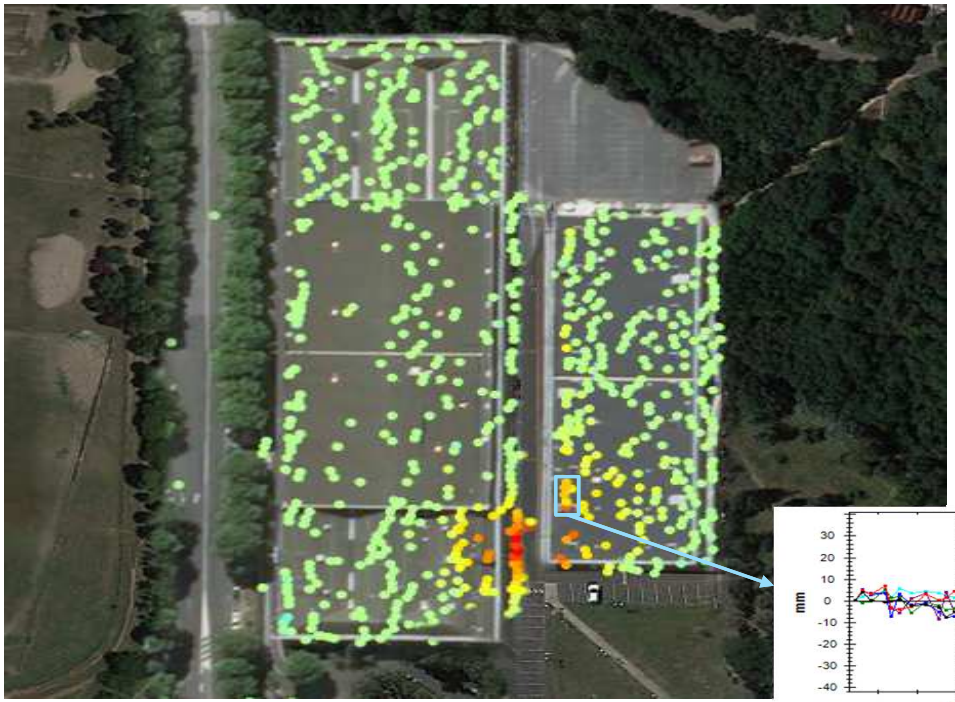


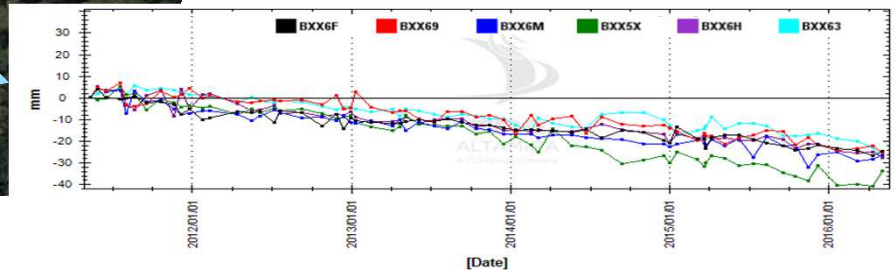
Rencontres 2019

ETUDE INSAR PHASE DESIGN DIMENSIONNEMENT FONDATIONS FUTUR PROJET

ETUDE GÉOTECHNIQUE SUR BÂTI EXISTANT

Etude de mouvements 2011-2016



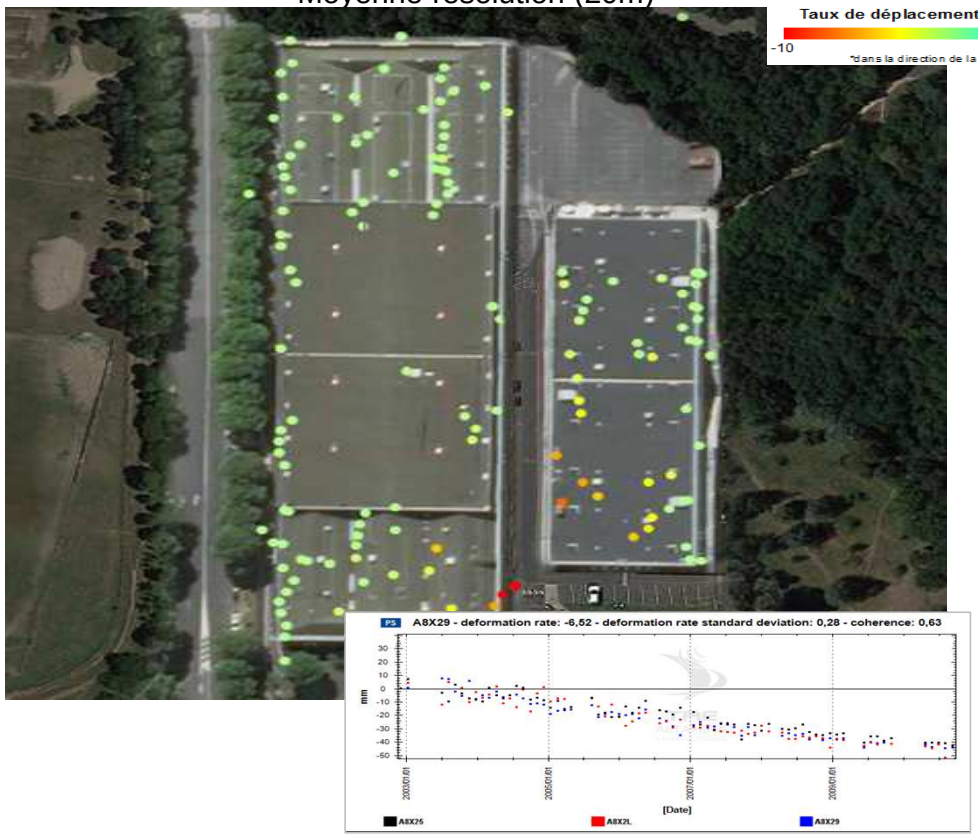


- Un tassement marqué est détecté sur deux bâtiments
- Le gradient de déformation est bien visible et le périmètre affecté bien délimité. Le tassement maximum est proche de 4 cm sur les 5 ans.

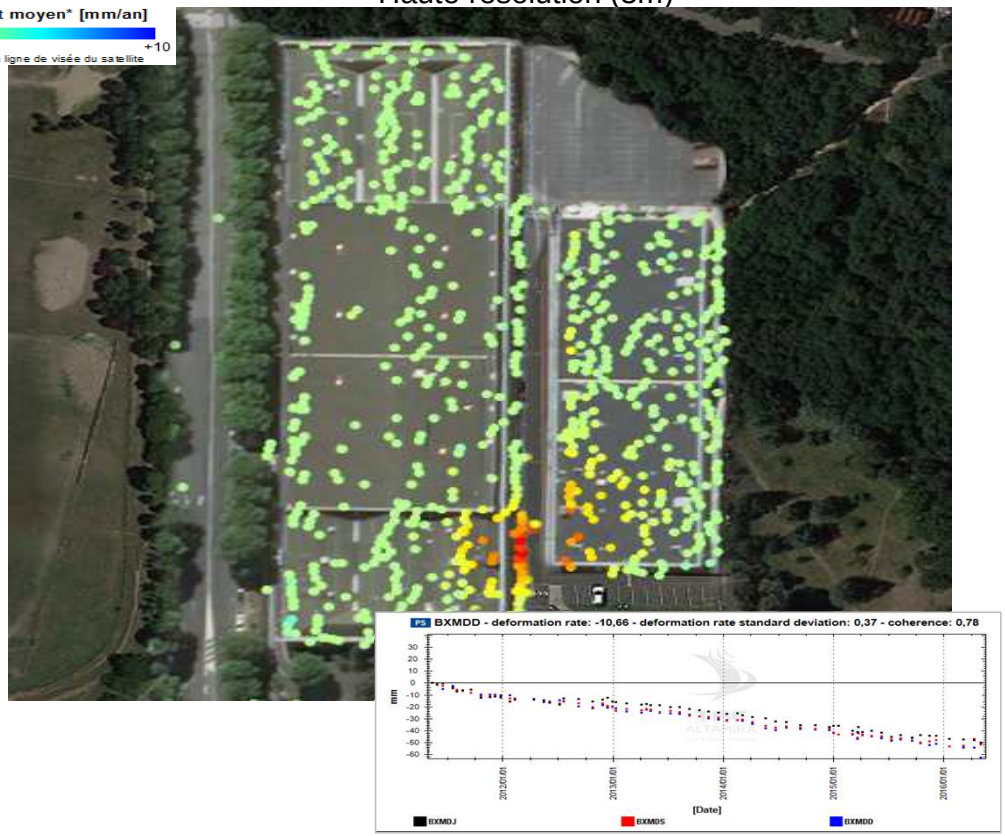
ETUDE GÉOTECHNIQUE SUR BÂTI EXISTANT

Etude moyenne résolution 2002-2010

67 images Envisat Bande C 2002-2010
Moyenne résolution (20m)



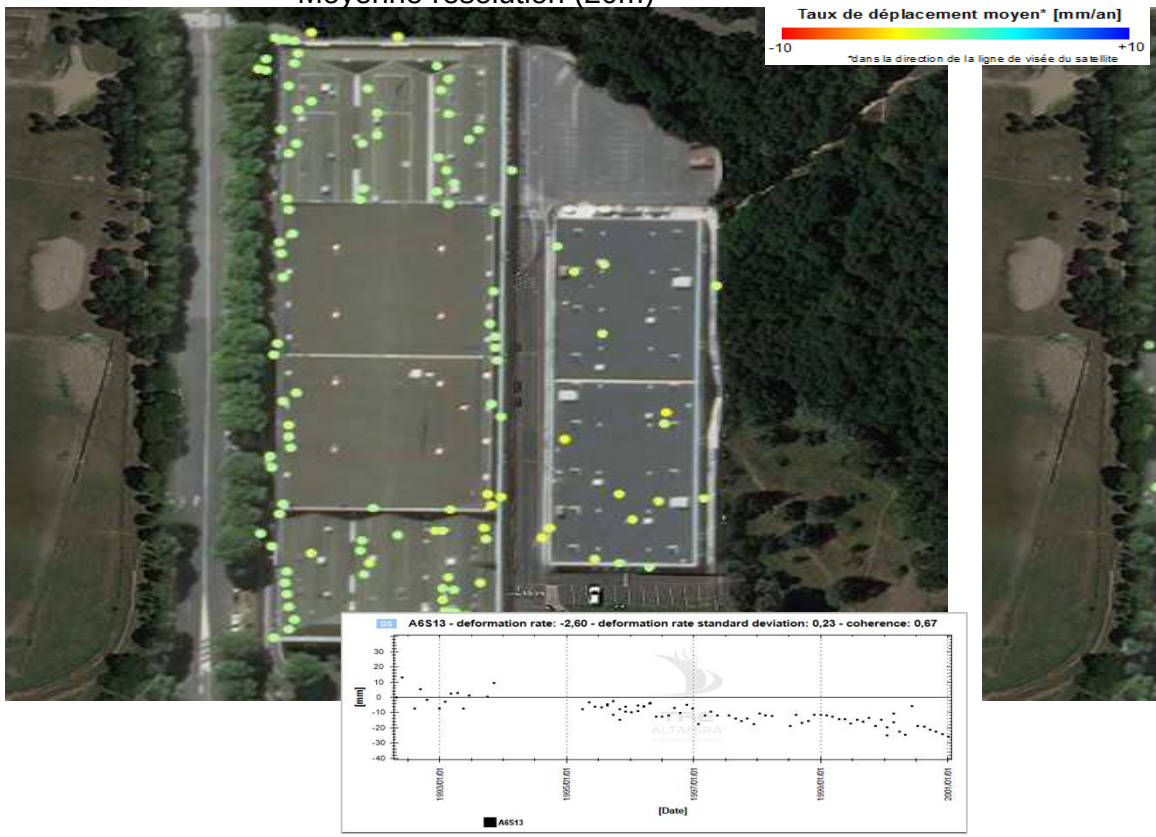
63 images CSK Bande X 2011 – 2016
Haute résolution (3m)



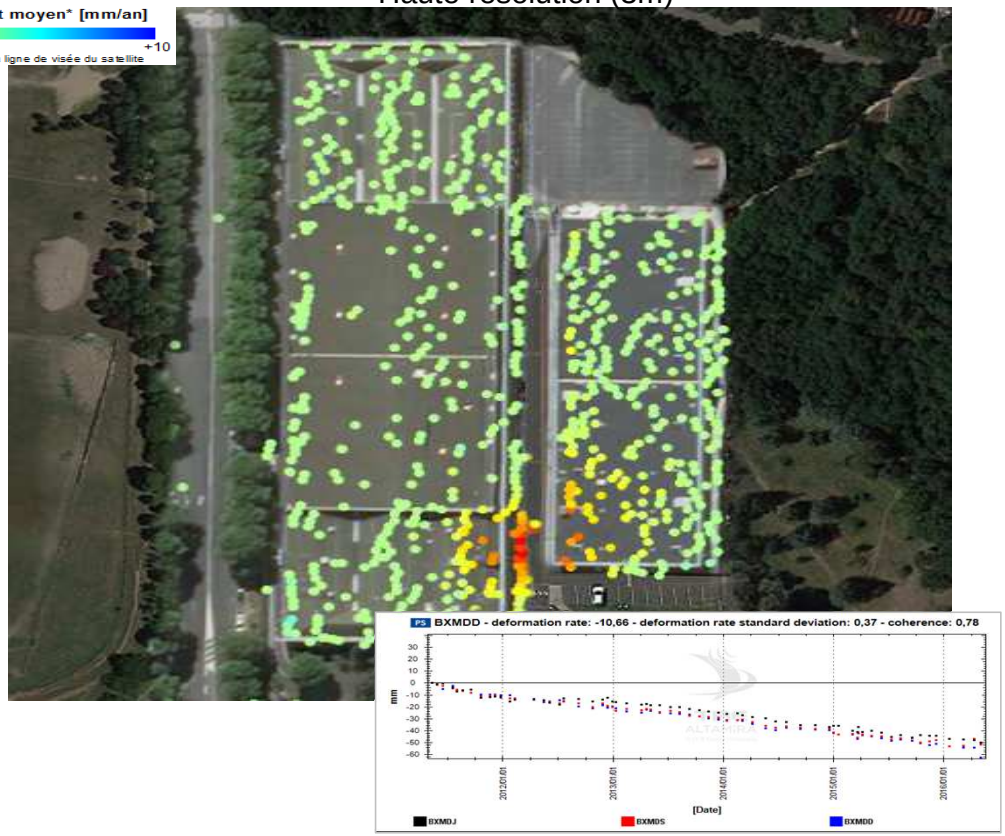
ETUDE GÉOTECHNIQUE SUR BÂTI EXISTANT

Etude moyenne résolution 1992-2001

80 images ERS Bande C 1992 –2001
Moyenne résolution (20m)



63 images CSK Bande X 2011 – 2016
Haute résolution (3m)



CONCLUSIONS

La carte de mouvement InSAR - Pourquoi disruptif ?

- Une vision macro grâce à l'emprise au sol des images satellite
- Une connaissance des périmètres impactés
- Possibilité de remonter dans le temps pour instruire des dossiers
- Des mesures objectives
- Une précision millimétrique
- Un déploiement simple : sans terrain, à distance
- Des résultats obtenus dans des délais courts (environ 2 mois)
- Des coûts faibles 20-100 K€ pour une étude historique

CONCLUSIONS

Quoi de neuf pour le Risk management ?

» Dans quel cadre ?

- **Expertise sur litige :** L'archive de données satellite permet de remonter dans le temps jusqu'à 1992 dans les cas où l'évolution temporelle d'un mouvement serait décisive pour faire le lien entre dommage, cause et responsabilité des parties concernées.
- **Expertise sur sinistres** : Ici aussi l'archive satellite pourra être exploitée pour réaliser une étude historique avant et après le sinistre pour mesurer les déformations et mieux comprendre les contextes (mouvements précurseurs, accélération de la déformation…)
- **Prévention de risques :** Donnée d'entrée dans phase avant projet pour les équipes d'Architecture et d'Ingénierie (méthodes de construction). Document technique relatif à l'état des avoisinants avant la phase travaux, référé préventif. Mise en place de monitoring en substitution ou complément de solutions in-situ.

» Quel risque ?

- Glissement de terrain
- Subsidence-tassement, surrection-soulèvement
- Retrait Gonflement Argiles
- Dissolution gypse
- Cavité

Aujourd’hui la France et demain, l’Europe

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tre-altamira.com

AGENDA

Rencontres 2019

Démonstration de la plate forme digitale Digisinistre pour la gestion de sinistres simples : P. Donaint Texa, 10 min

Conclusions et questions