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## KOSTASystem, a coastal videometry technology: development and applications

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(1) AZTI Marine Research, Basque Research and Technology Alliance (BRTA)

## Takeaway message



# Operational use of videometry in a coastal observatory generates high impact

### In a coastal zone

- with high ecological and economic value
- with very high natural and anthropogenic pressure

### NEED FOR HIGH RESOLUTION MONITORING

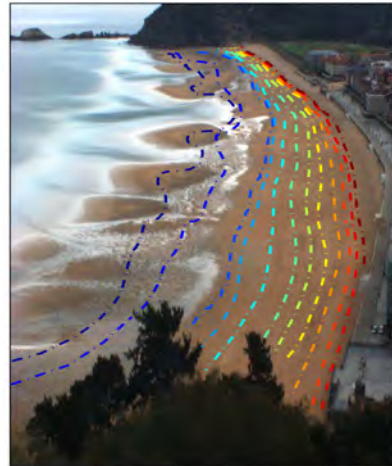
- To understand the processes and their relationship with uses
- To mitigate current issues
- To anticipate future problems



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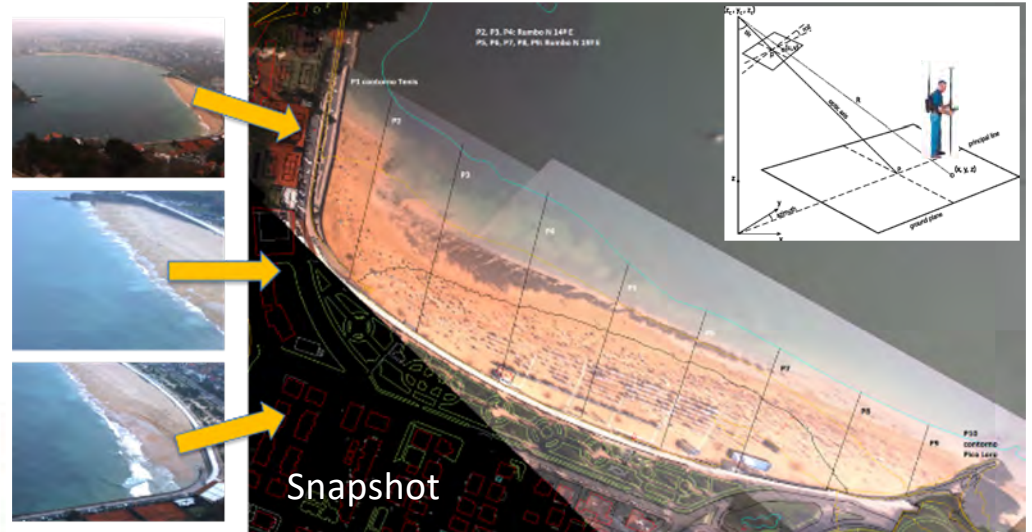
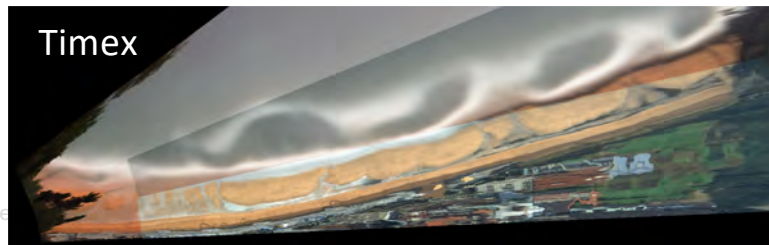
- INTRODUCTION
- HARDWARE AND SOFTWARE
- COASTAL VIDEOMETRY STATIONS ON THE BASQUE COAST
- COASTAL SERVICES
- WAY FORWARD

# From *Image* to *Information* with needed space-time resolution



**Raw products:**

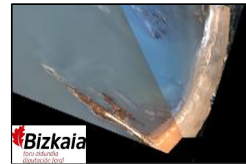
- Snapshot
- Timex
- Timestack



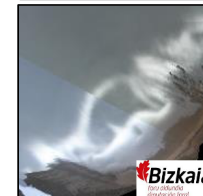
# INTRODUCTION *Background*



2005 2007 2009 2010 2012 2013 2017 2018 2019-2020



With collaboration



1. Mundaka

2. Bakio

3. Zarautz

4. La Arena

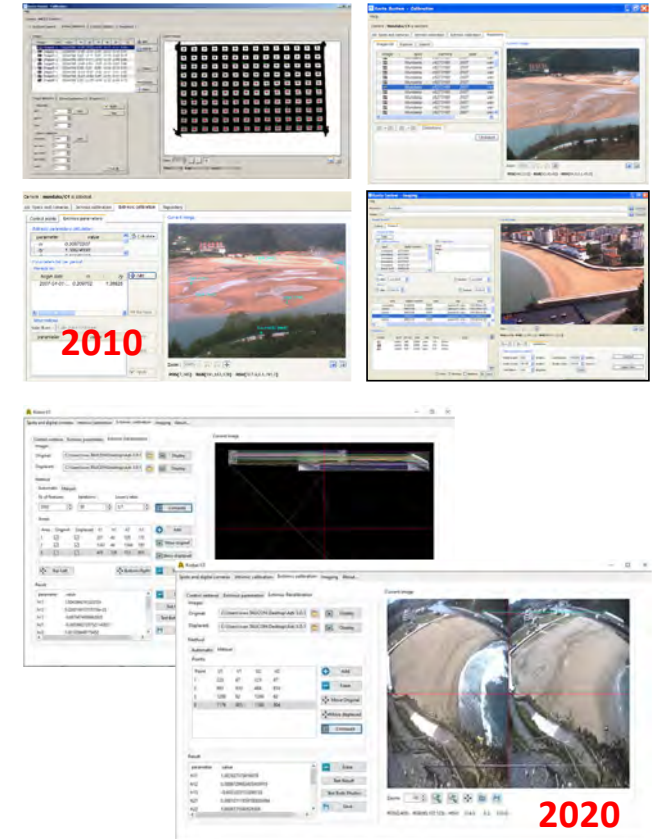
i. Anglet

5. Arrigunaga  
6. Bermeo  
ii. Biarritz

7. Deba  
8. Hondarribia  
9. Arriatera-  
Atxabiribil  
10. Barinatxe  
11. Adour  
12. Huveaune

13. Malkorbe  
14. Santiago  
15. Antilla  
16. Itzurun  
17. Saturraran  
18. Gaztetape  
19. Ondarbeltz  
20. Zurriola  
21. Concha

# HARDWARE AND SOFTWARE DEVELOPMENTS

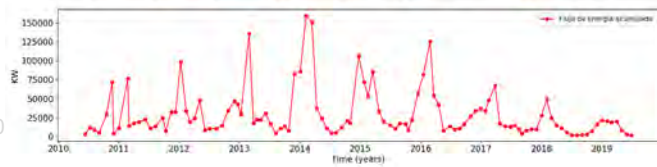
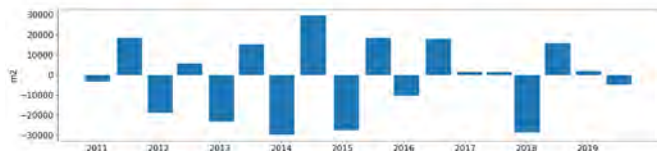
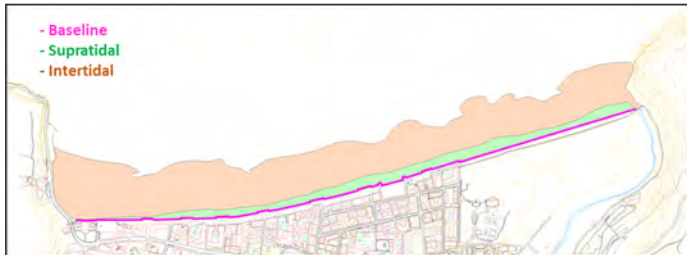


# COASTAL VIDEOMETRY STATIONS ON THE BASQUE COAST

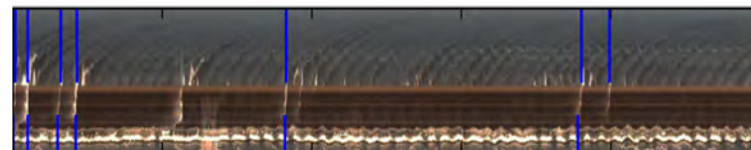
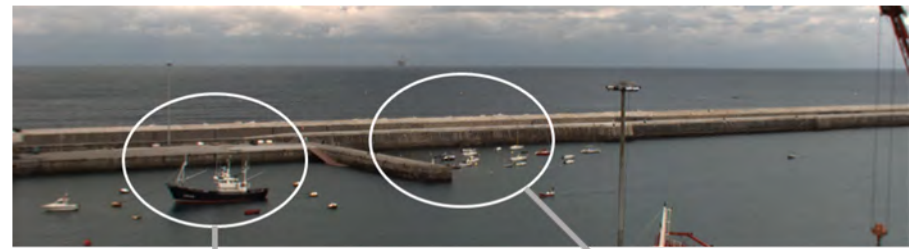




## Long term and climate change context



## NRT wave overtopping and flooding monitoring

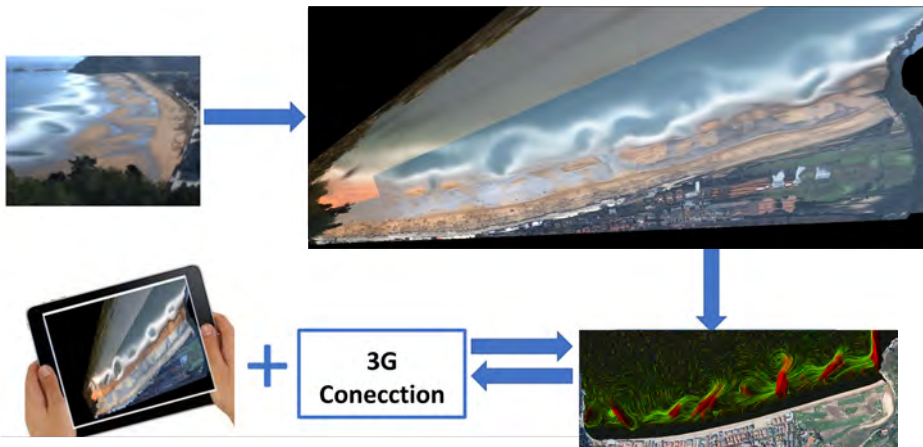


14 SABADO  
 14 de diciembre de 2019

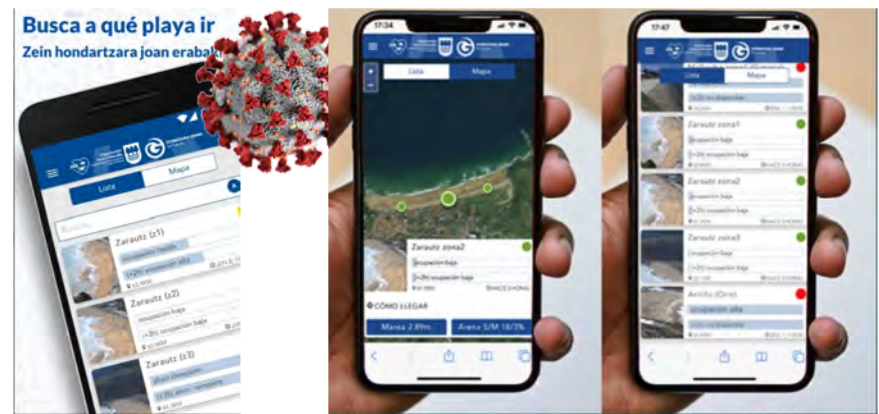
- ALERTA NARANJA. RIESGO MARITIMO-COSTERO**  
 Riesgo: Alarvegiñan, desde las 03:00, hasta las 05:00 hora local. La altura de ola significativa rondará los 5-9 m. La mar de fondo que entrará inundará una de 4 m. Período: 14-15 s.
- RIVISO AMARILLO. RIESGO MARITIMO-COSTERO**  
 Riesgo: Alarvegiñan, desde las 02:00, hasta las 24:00 hora local. La altura de ola significativa rondará los 4-5 m. La mar de fondo del momento inundará una de 14 m. Período: 14-15 s.
- RIVISO AMARILLO. RIESGO MARITIMO-COSTERO**  
 Riesgo: Previsión en costa, desde las 00:00, hasta las 02:00 hora local. Debido a las características del oleaje se pueden producir algarabias e inundaciones en puertos y embarcaciones, especialmente en el entorno de las gresnueras.
- ALERTA NARANJA. RIESGO MARITIMO-COSTERO**  
 Riesgo: Alarvegiñan en costa, desde las 24:00, hasta las 02:00 hora local. La altura de ola significativa podría situarse en torno a 5-6 m. Período: 13 s. Fase de 03:33 (hora local) con una marea astronómica meteorológica + meteorológica de +4,32 m. Índice de riesgo: 1-6.5 m a 1 hora/7 s.
- RIVISO AMARILLO. RIESGO MARITIMO-COSTERO**  
 Riesgo: Previsión en costa, desde las 22:00, hasta las 19:00 hora local. La altura de ola significativa podría situarse en torno a 4-5 m. Período: 14 s. Fase de 02:02 (hora local) con una marea astronómica meteorológica + meteorológica de +4,23 m. Índice de riesgo: 1-6 m a 8 horas/6,5 m.



NRT rip current detection and forecast



User density NRT monitoring and annual reporting








THANK YOU  
FOR YOUR ATTENTION

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*More info in recent paper *



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Beach carrying capacity management under Covid-19 era on the Basque Coast by means of automated coastal videometry

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