SELF-MANAGED MONITORING PROGRAM FOR COASTS

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OBJECTIVES

- Overview of the instrumentation
- Overview of an actual monitoring program
- Course objectives
- Course development

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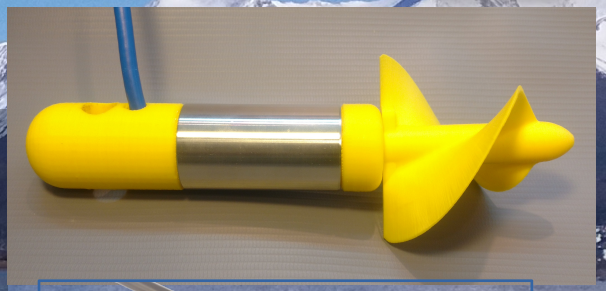
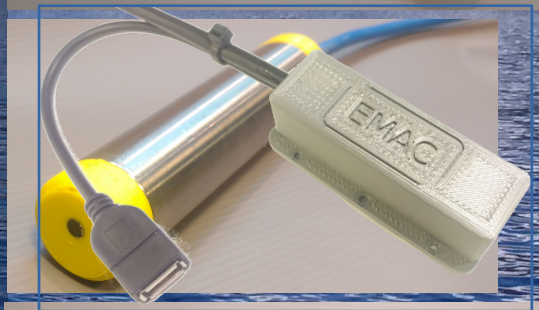
Low-cost Sensors

SENSORS DEVELOPED

- CONDUCTIVITY + TEMPERATURE
- OPTICAL BACKSCATTER SENSOR
- WATER LEVEL (PRESSURE & ACCUSTIC)
- CURRENTMETER
- WAVE SENSOR (ACCELERATION & PRESSURE)
- WIND DIRECTION & SPEED (COMPASS CORR,)
- SOLAR RADIATION (PIRANOMETER)
- TEMPERATURE (AIRE+WATER+ SOIL > CHAINS)
- PLUVIOMETS (STAINLESS STEEL)
- DEPTH SESNOR (ACCOUSTIC – PFOR BUOYS)
- ACCOUSTIC PROFILER– 115 KHZ (test fase)





BUILT BY RESEARCHERS FOR RESEARCHERS

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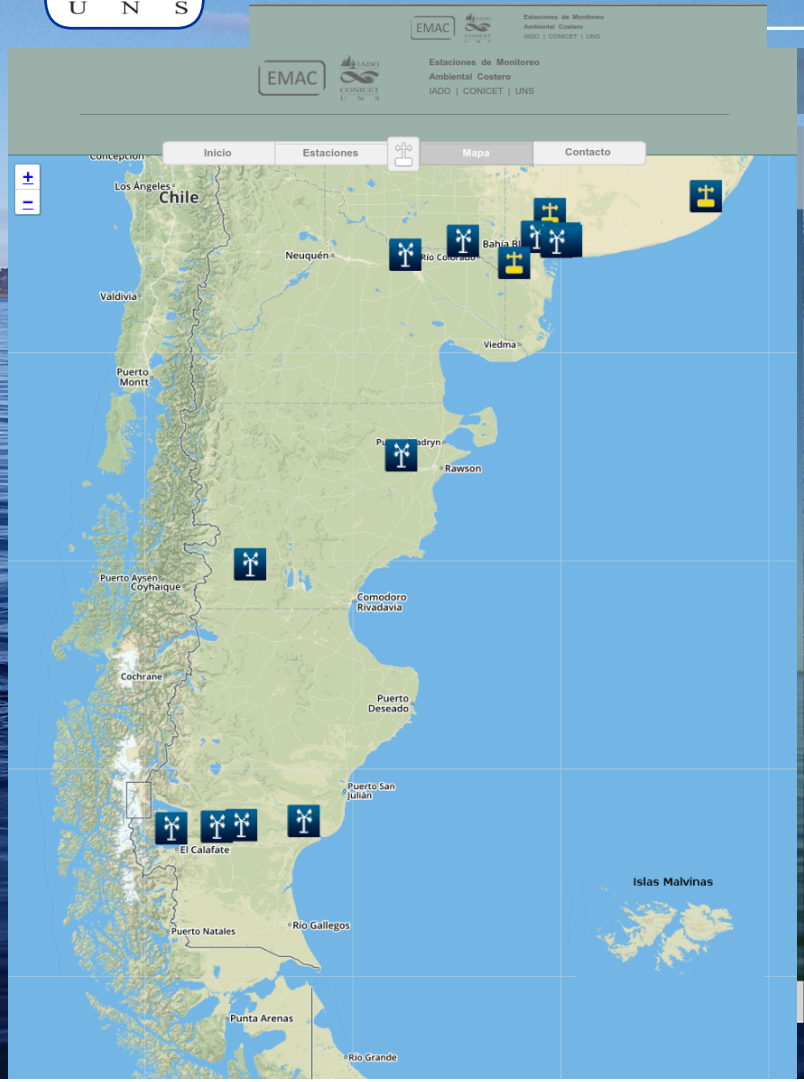
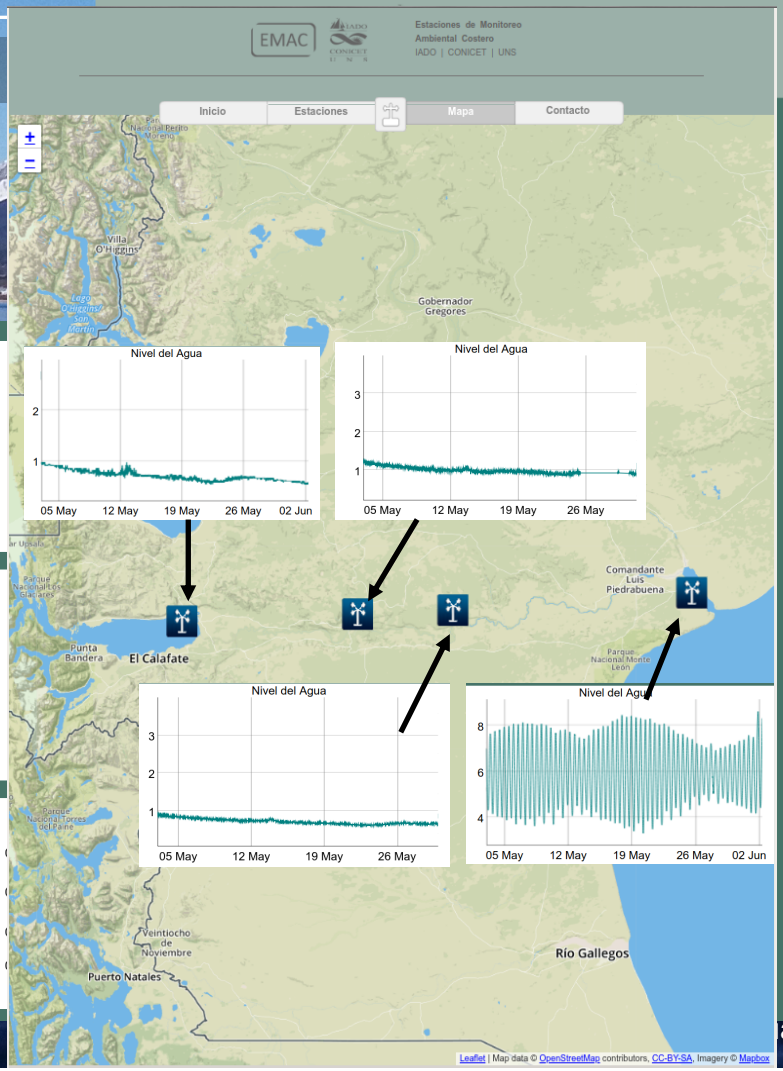
BUOYS AND STATIONS LOW-COST MONITORING NETWORK





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Example of a Fully Monitored Beach

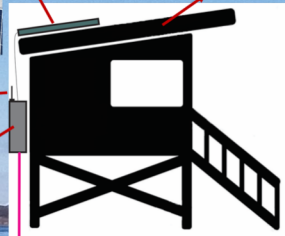
Paneles solares

Puesto Reserva Natural Pehuén Co-Monte Hermoso

Antena de Transmisión

Adquisidor central

Cable subterráneo



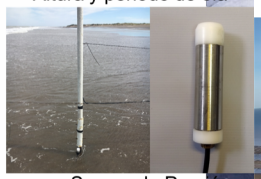
Estación 1:
-Temperatura de aire

Sensor de Temperatura

Estación 2:
-Temperatura de aire/agua
-Temperatura de sedimento

Estación 3:
-Temperatura de aire/agua
-Temperatura de sedimento

Estación 4:
-Temperatura de aire/agua
-Nivel de agua
-Altura y periodo de ola

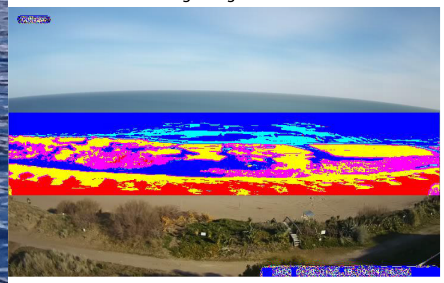


Sensor de Presión

50 m

Imagen original

Imagen segmentada



Agua

Rompiente

Rocas

Arena Húmeda

Arena Seca

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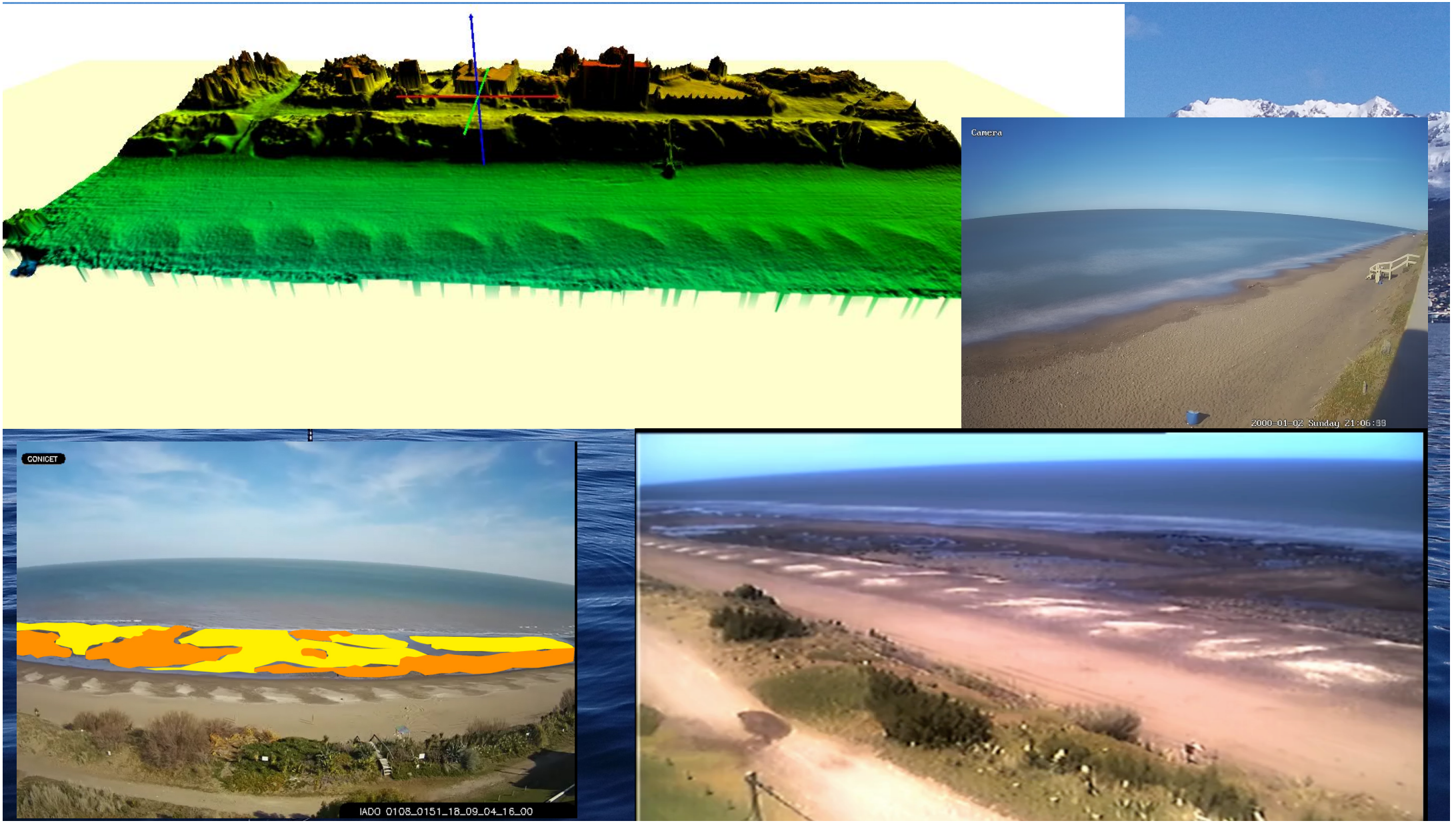
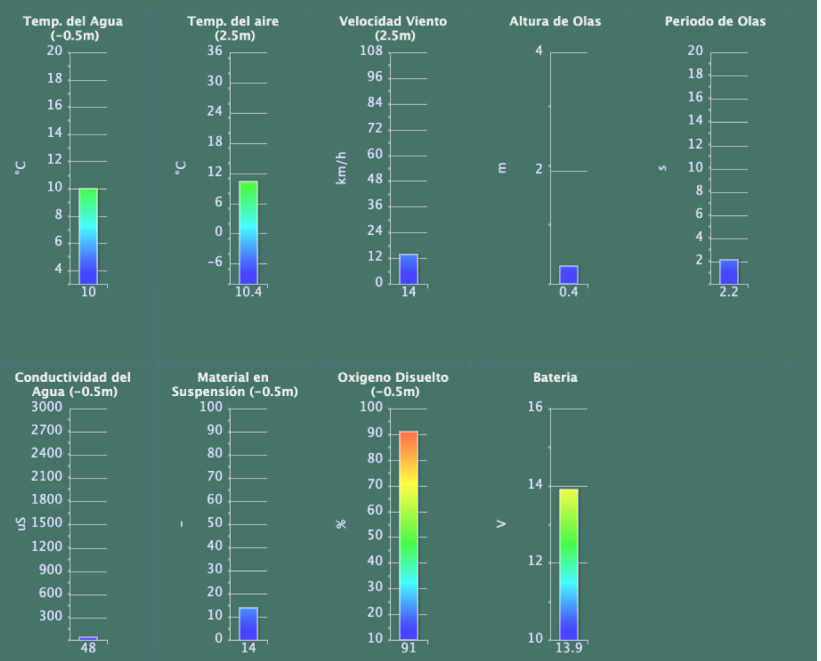

Camera
2000-01-02 Sunday 21:06:08
GONICET
IADO 0108_0151_18_09_04_16_00

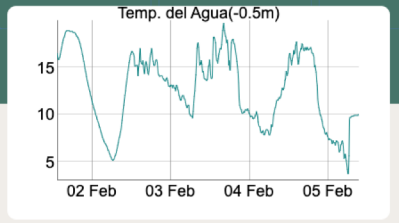
Boya - Lago Argentino

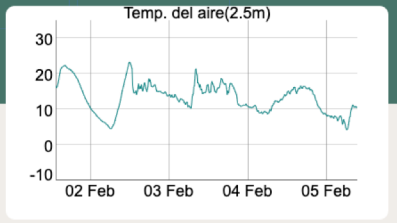
Ultimo registro 2020-02-05 09:40:00

Temp. del Agua (-0.5m)	Temp. del aire (2.5m)	Velocidad Viento (2.5m)	Altura de Olas	Periodo de Olas
10.0 (°C)	10.4 (°C)	14.0 (km/h)	0.40 (m)	2.20 (s)
(min.) 3.7	(min.) 4.2	(min.) 0.0	(min.) 0.20	(min.) 2.20
(med.) 12.7	(med.) 13.3	(med.) 10.0	(med.) 0.85	(med.) 7.35
(max.) 19.7	(max.) 23.2	(max.) 35.5	(max.) 2.00	(max.) 15.90

Conductividad del Agua (-0.5m)	Material en Suspensión (-0.5m)	Oxigeno Disuelto (-0.5m)	Bateria
48 (uS)	14 (-)	91 (%)	13.9 (V)
(min.) 10	(min.) 4	(min.) 17	(min.) 12.7
(med.) 704	(med.) 8	(med.) 83	(med.) 13.3
(max.) 2 675	(max.) 35	(max.) 99	(max.) 13.9

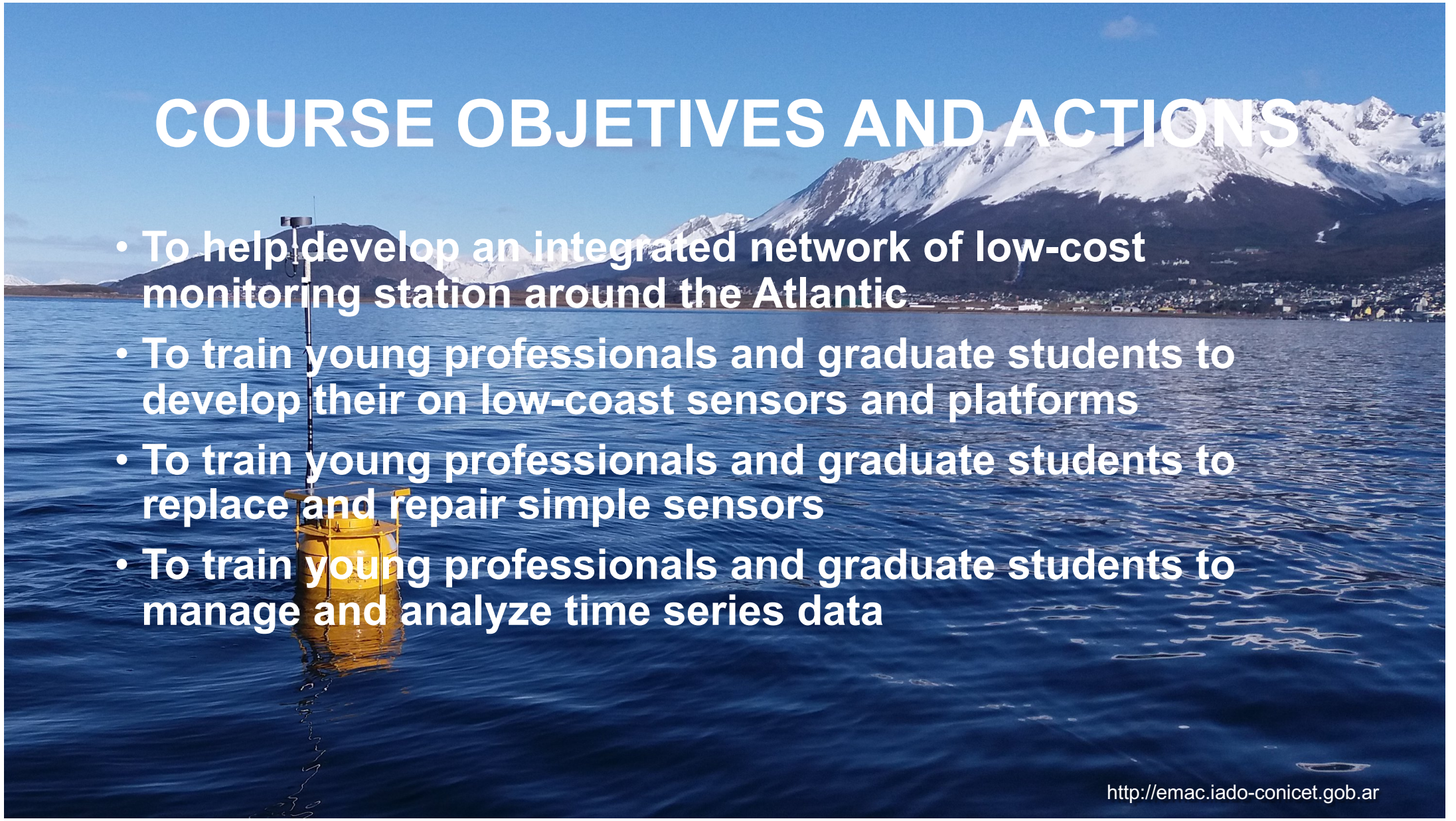






COURSE OBJETIVES AND ACTIONS

- To help develop an integrated network of low-cost monitoring station around the Atlantic
- To train young professionals and graduate students to develop their on low-coast sensors and platforms
- To train young professionals and graduate students to replace and repair simple sensors
- To train young professionals and graduate students to manage and analyze time series data



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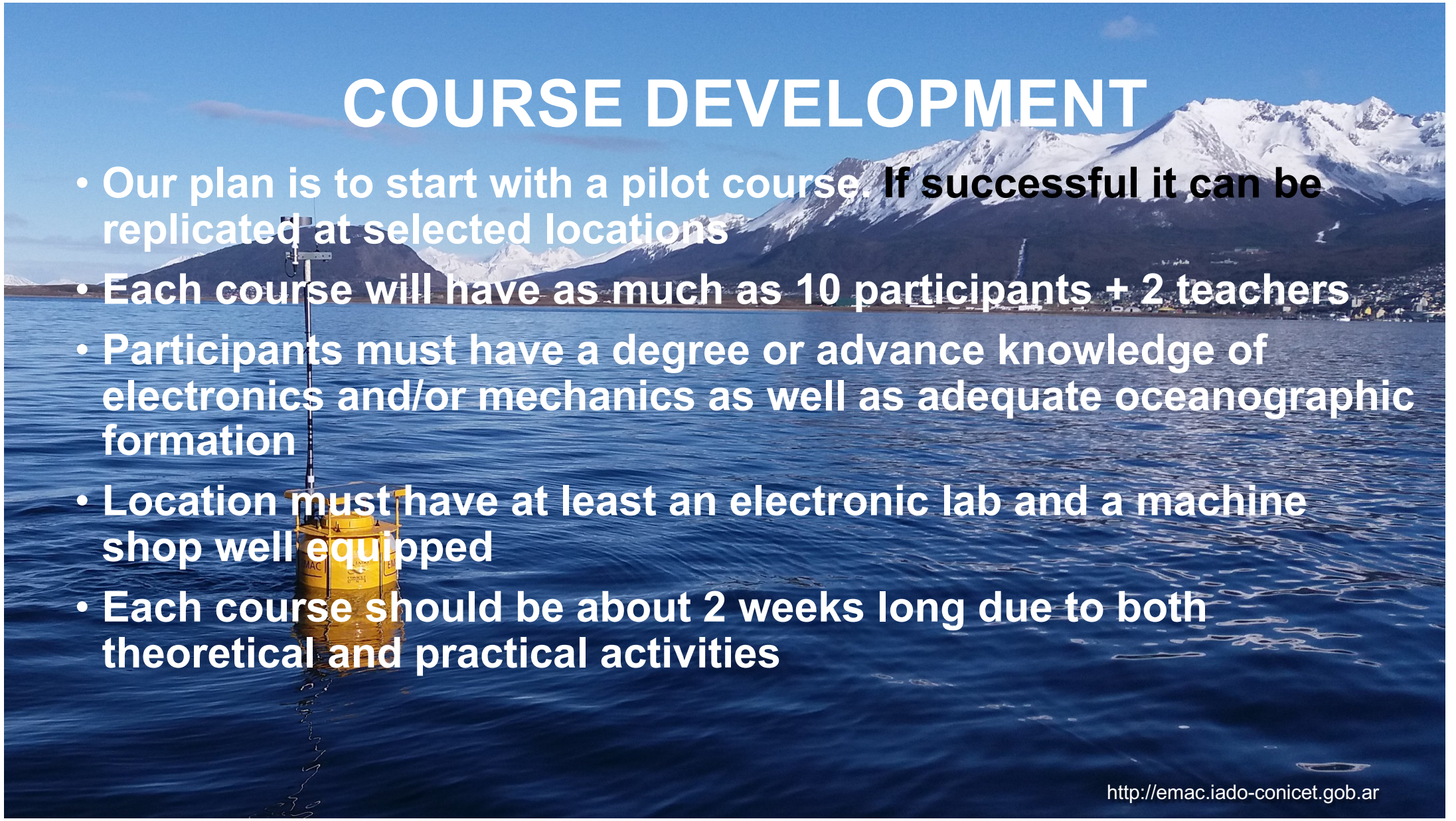
COURSE DEVELOPMENT

- Our plan is to start with a pilot course. **If successful it can be replicated at selected locations**
- Each course will have as much as 10 participants + 2 teachers
- Participants must have a degree or advance knowledge of electronics and/or mechanics as well as adequate oceanographic formation
- Location must have at least an electronic lab and a machine shop well equipped
- Each course should be about 2 weeks long due to both theoretical and practical activities



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COURSE OUTCOME

Participants will be able to

- Build their own sensors and platforms
- Repair and replace those sensors in short time
- Establish how to define the best site and conditions for locating a sensored platform
- Make the actual installation of the sensored platform
- Define a maintenance program fo the platform and sensors
- Make a QA/QC of the data
- Analyze time series data

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MANY THANKS

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