



SNGR
**Secretaría Nacional de
Gestión de Riesgos**

Incorporating the Climatic Change Variable on Risk Management Projects of SNGR

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Outline

1. Political framework
2. CICC -Environmental Ministry
3. Climatic Change Scenerios at Ecuador
4. Risk Management work on CC
5. Some conclusions

1. Political framework

- Current government has elevated to “public policy” the climatic change (CC) issue.
- Executive decree 1815 –declares “climatic change adaptation and mitigation” as state policy.
- The 2008 Constitution contains some articles regards CC: mitigation through decrease deforestation, conservation of forests and vegetation, and protection of population on risk.
- The national plan for development (“Plan for Good Living”) also includes CC references.

1. Political framework

-Institutionality

- Climatic Change Subsecretary at Environmental Ministry of Ecuador
- The CC Subsecretary have two directions: adaptation and mitigation
- CICC –Interinstitutional Committee of Climate Change. In charge of implement the CC policy on Ecuadorian State.



**Ministerio
del Ambiente**

2. CICC

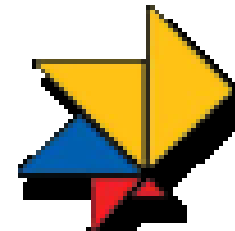
-Comité Interinstitucional de CC

- Created by Executive Decree 495 (2010).
- Its main objectives are: be an High Level Panel for coordinate the execution of the national policy of CC, the National Strategy of CC, and the compromises acquired on UN Framework Convention on Climatic Change; and promote research on areas related of CC, including the mitigation and adaptation.

2. CICC

- Integrants

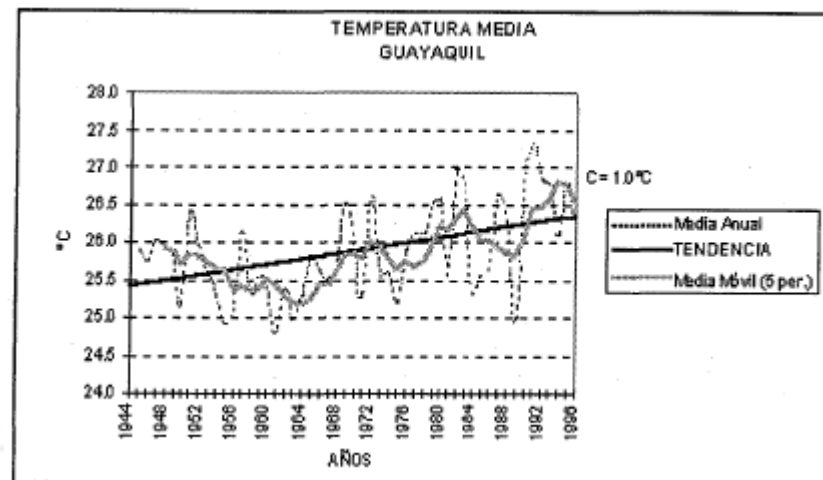
- Planning Secretary
- Patrimony Secretary
- Environmental Ministry
- Strategic Coordination Ministry
- Production and Employment Coord. Ministry
- Social Development Ministry
- External Relations Ministry
- Water Secretary
- Risk Management Secretary



(Or their delegates...)

3. Climate change scenarios

- Studies from Meteorological and Hydrologic Institution (INAMHI) and from Oceanographic Institution of the Navy (INOCAR).
- Precipitation and Air Temperature (Meteorology)
- Mean Sea Level (Oceanography)



3. Climate change scenarios

-Meteorology

- Three CC models run:
 - PRECIS (25 km, A2 and B2 scenarios, Centella and Bezanilla, 2008).
 - ETA (56 km, A2 and B2 scenarios, Rodrigues, Soares and Marengo, 2008).
 - TL959 (20 km, A1B scenarios, Kusonoki et al., 2008).

3. Some conclusions on Scenarios

-Meteorology

- The results suggest (consensus), for the long term, an increase in the intensity of precipitation for Highlands, and a decrease for Amazonia and Coastal regions.
- For the short term, the TL959 shows an increase of amount and precipitation intensity for Coastal region. This trends is some contrasting on different areas at Highlands and Amazonia.
- Regards Air Temperature, all models coincide in a progressive warming on this variable.

3. Tide Gauge Time series (Oceanography)

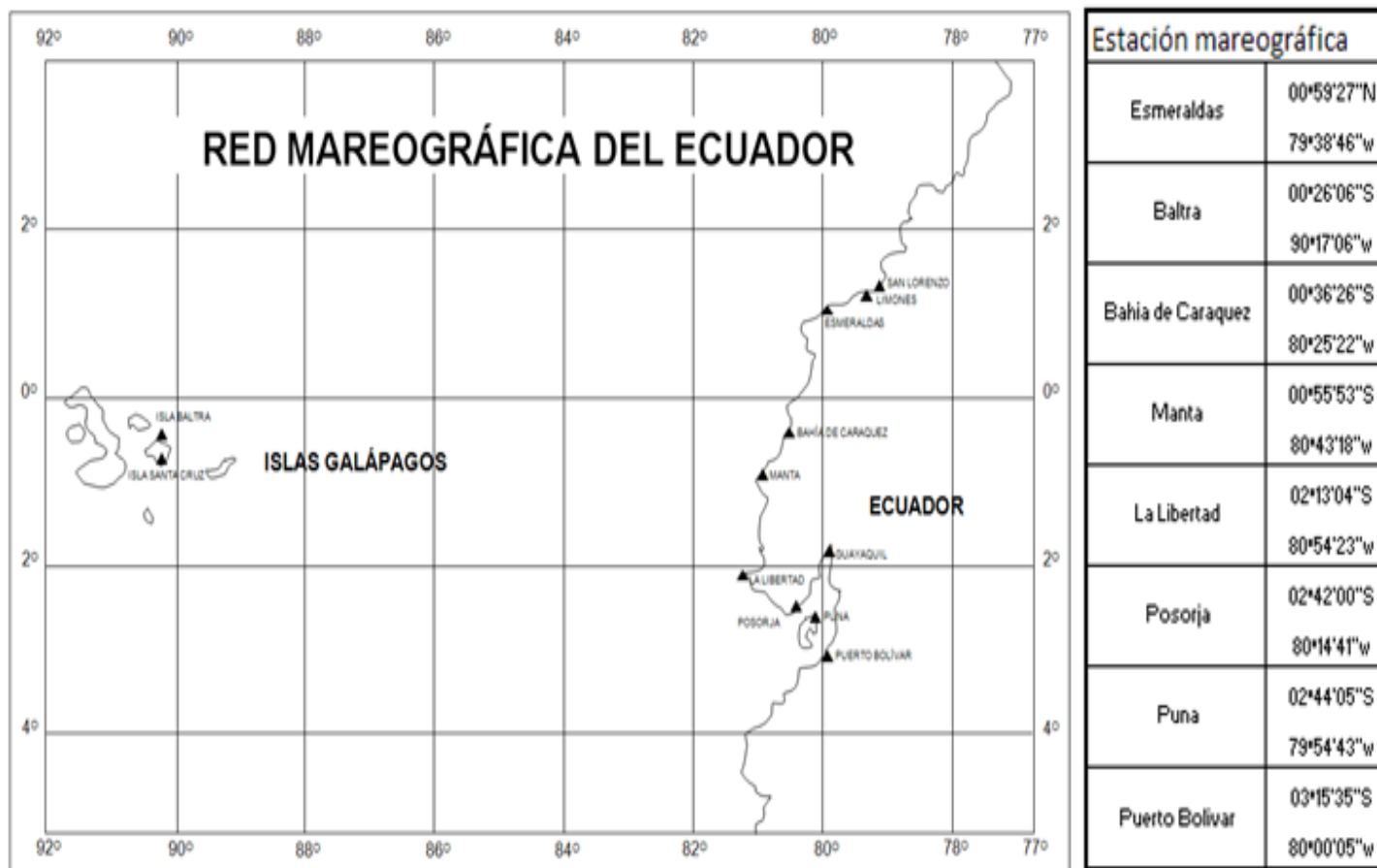


Fig. 1 Ubicación y posición geográfica de la red mareográfica del Ecuador

3. Tide Gauge Time series (Puerto Bolívar)

-30 years (1972-2002)

-Linear trend shows an increase of
16 cm in 32 yrs (rate: +5 mm/yr)

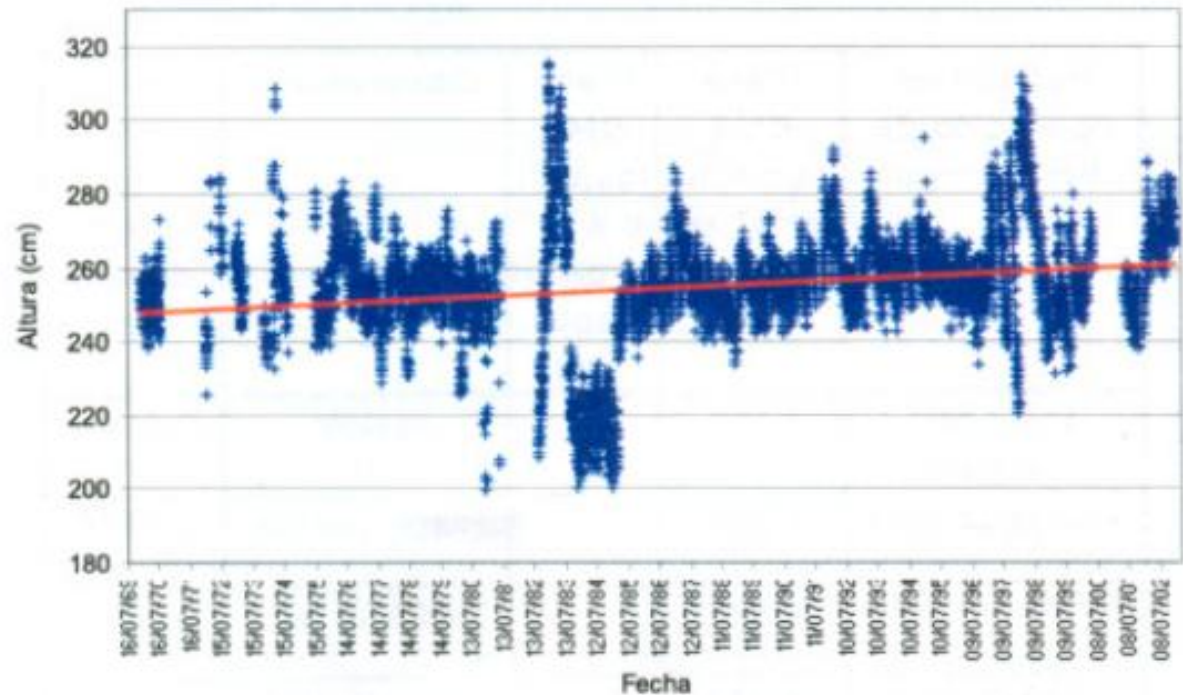
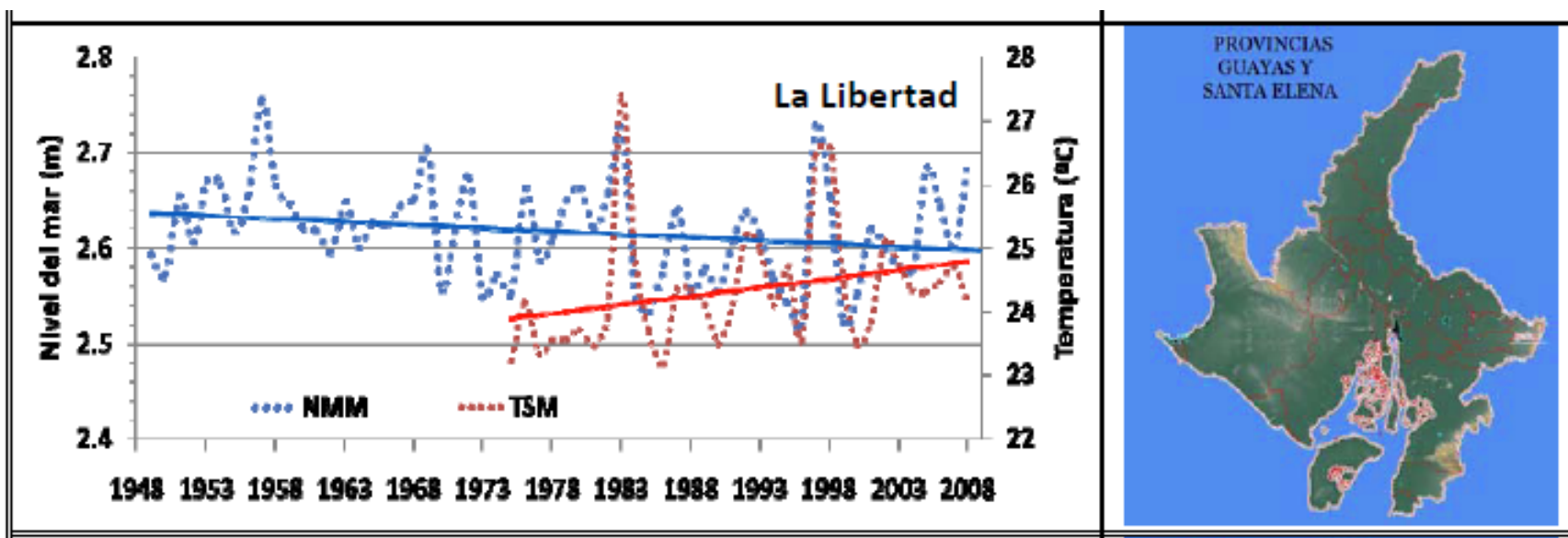


Figura 5- Datos horarios corregidos del NMM, Puerto Bolívar

3. Tide Gauge Time series (La Libertad)

-The longest one, data availability from 1948

-Linear trend shows a decrease of 1.8 cm in the study period (rate: -0.5 mm/yr)



3. Tide Gauge Time series

Some conclusions

- Obviously, the Ecuadorian tide gauge time series shows contrasting results.
- Some problems on the QC of data series.
- The study of Mean Sea Level variations on Ecuadorian Coast must be addressed with La Libertad Tide Gauge (free of river influence, and the longer and stable one).
- Lack of quantitative estimations of land movements (Sudamerican Plate). Is it up or down?

4. Risk Management work on CC

- Is intention that Ministries “include” the CC variable on its projects.
- The current diagnose is the government agencies doesn't implement yet this policy in a integral way.
- Some problems were identified: lack of clarities on main guidelines implementation from CICC and the not very well-knowing of CC effects at the central government

4. Risk Management work on CC

SNGR initial approach

- A discussion was established for discuss the CC effects, and how to fulfill this policy.
- Despite the fact that no-one project was declared before as “CC variable include”, some of the main initiatives addresses the high variability of recent climate.
- By consensus, it was identified that more important than CC effects (long term) is the high climatic variability effects (short term, maybe influenced by CC)....

4. Risk Management work on CC

SNGR initial approach

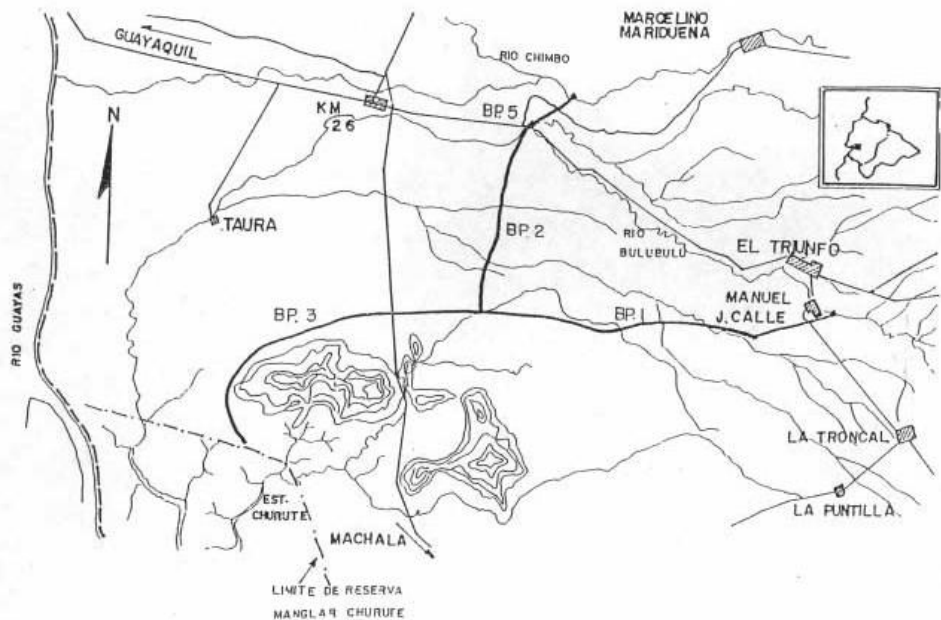
- Particularly important are the projects of coastal protection (Jambelí and Bajoalto)...



4. Risk Management work on CC

SNGR initial approach

- ... and works for floods' effect mitigation (bypasses on lower Guayas river basin).



4. Some conclusions and future work

- Climatic Change policy: good in paper. Challenging to implement.
- Initiatives that are progressing: some adaptation programs at Manabí, Loja, Azuay and Cañar provinces (PACC program of MAE). Emphasis on water resources management.
- ITT (Ishpingo-Tiputini-Tambococha Block) project: maintaining the crude below land (leaded, again, by MAE). Results modest.

4. Some conclusions and future work

- Restructuration and reconversion of energetic matrix: use of renewal sources of energy instead of non-renewal. Case: Coca-Codo Sinclair Project (1,500 MW). This enables satisfy the 62% the demand of energy on Ecuador.



4. Some conclusions and future work

- The role of scientific community (closely with governmental officers) should be more active on governmental agencies, diffusing the potential effects of CC on society, articulating in a better way the interinstitutional communications → an effective implementation of adaptation and mitigation measures.

4. Some conclusions and future work

- Risk Management Secretary should assess the long term impacts due to CC. The main trends identified by climate scenarios runs shows an increase of extreme events (strong precipitations) and an increase of air temperature → flood management projects (*proyectos multipropósitos*) and drought mitigation projects.
- Others areas to study: loss of snow cover at Highlands, sedimentations of rivers, saline intrusion, receding coastline and coast erosion due a “potential” sea level rise....



Papallacta, Quito



Daule river, Guayaquil



Montañita, Sta. Elena



Chimborazo volcano

Thanks!