



Swiss Re

# El Nino and its Impact on Re/Insurance

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Swiss Re Global Partnerships



# Swiss Re at a glance



Swiss Re is a **leading and highly diversified global reinsurer**, founded in Zurich (Switzerland) in 1863

The company offers **traditional reinsurance products and related services** for property and casualty, as well as for life and health businesses

These traditional products are complemented by **insurance-based corporate finance solutions** and supplementary **services for comprehensive risk management**



**Our financial strength<sup>1</sup>** is currently rated:  
Standard & Poor's: AA- (stable); Moody's Aa3 (stable); A.M. Best: A+ (stable)

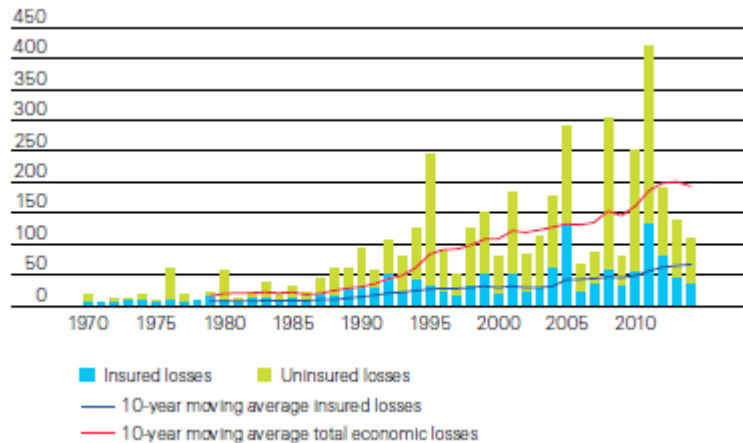
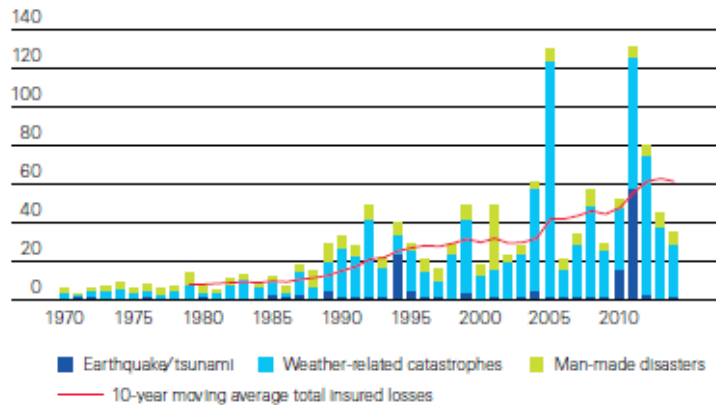
Swiss Re has teams which focus on underwriting natural disasters, agricultural production and the energy and commodities markets.



Key statistics (USD billions)	FY 2011	FY 2012	FY2013	FY 2014
Total revenues:	28.0	33.6	36.9	37.3
Net income:	2.6	4.2	4.4	3.5
Shareholders' equity:	29.6	34.0	33.0	36.0

<sup>1</sup> As at 13 February 2015

# Economic and Insured Catastrophe Losses (2014 USD) 1970 - 2014



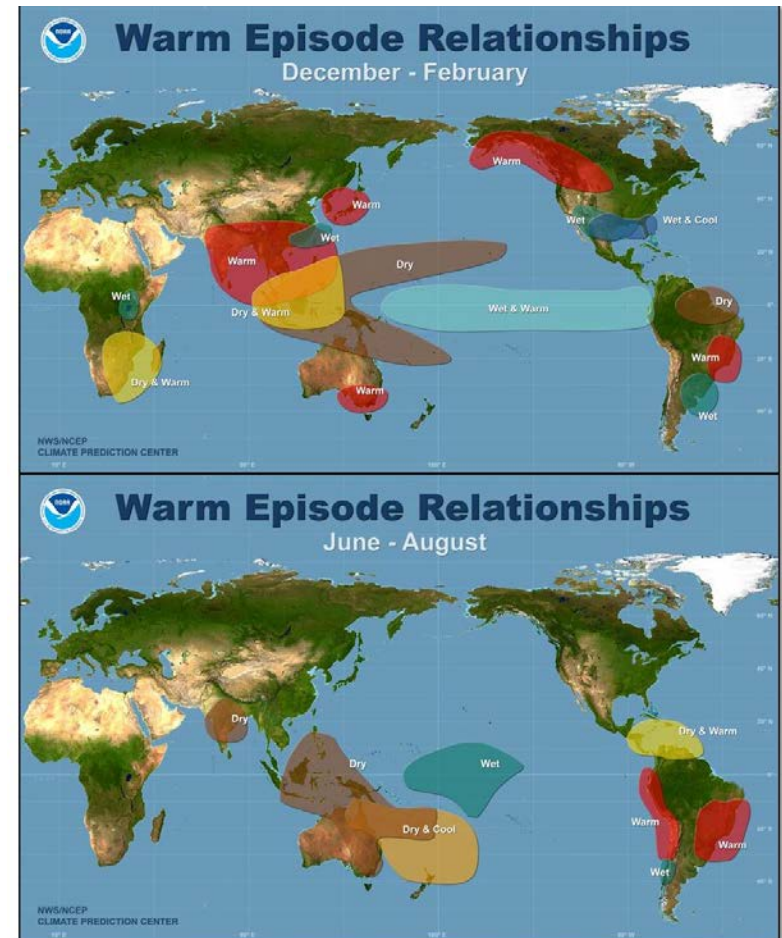
Source: Swiss Re Economic Research and Consulting

- Dominated by extreme weather events and weather-related disasters.
- Increasing trend in losses over time.
- Increasing gap between economic loss and insured loss.
  - More assets and people in high risk areas.
  - Economic growth outpacing insurance penetration growth in developing economies.



# Why does Swiss Re take an interest in El Niño?

- Influences hurricane formation in both the Atlantic and East Pacific.
- Strong links to drought conditions in regions within Asia, Africa and Central/South America.
- Impacts on heat waves in southern Australia during austral summer.
- Strong El Niños tied to heavy rains, flash flooding and landslides in California.



Source: NOAA/CPC

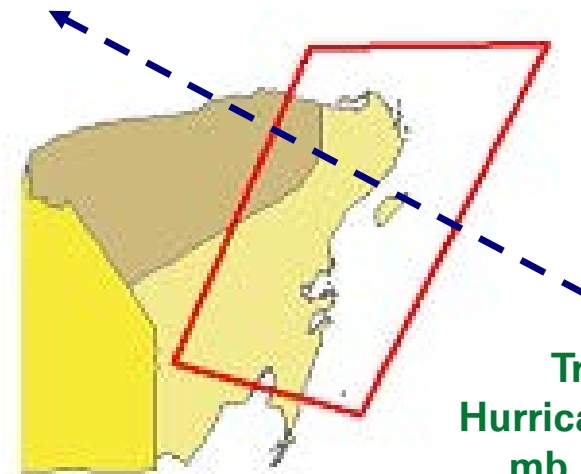
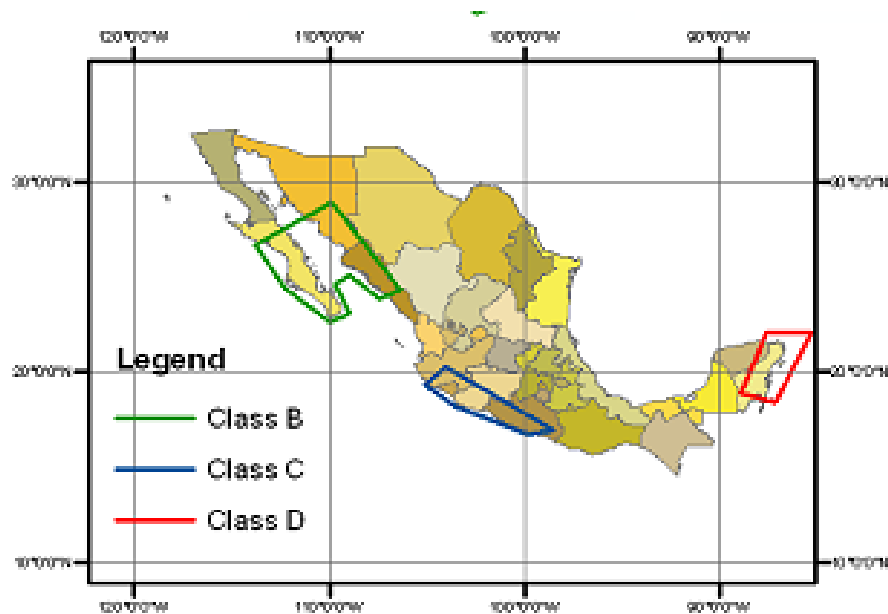
# The Influence of El Niño on Swiss Re's business

- El Niño is not explicitly considered in our natural catastrophe modeling framework.
  - Many other modes of climate variability influence hurricane genesis and intensification, particularly in the Atlantic.
  - Numerous years in the historical record contain significant events during El Niño years (i.e. Audrey).
- Of high importance to energy, commodity and agricultural business.
  - Many contracts only cover a season, instead of a 12 month period and do not renew automatically → **El Nino can have a significant impact of loss potential.**
  - Many contracts are signed only shortly before inception, within the range of ENSO predictability → **Adverse selection is a concern and must be managed.**
- Requests for non-standard solutions, including index-based insurance, is increasing, due to the growth of the public sector as an insurance buyer.

## Traditional vs. Parametric – Benefits to buyer

Topic	Traditional Insurance	Parametric Solutions
Use of Proceeds	Intended to cover loss sustained	Used at buyers discretion
Speed of Payment	Subject to loss adjustment (can be slow)	Rapid: 2 – 6 weeks
Loss Adjustment / Administrative Process	Yes - buyer may need own claims adjusters	No – little claims administration needed
Transparency	Loss settlement is complex to explain	Parametric triggers easier to explain
Pricing Flexibility	Limited modifications	Structure can be adjusted to price
Changes in Exposure	Annual adjustments	No adjustment needed

# How do Parametric solutions work: MultiCat Mexico hurricane example

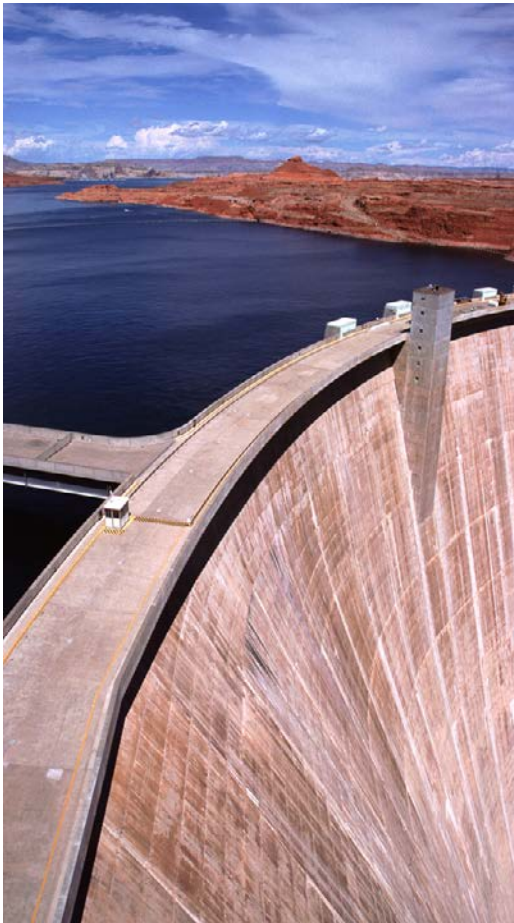


**Trigger:**  
Hurricane of 920  
mb or lower  
through box =  
payment

# Case studies



# Case study Uruguay: Largest Energy Risk Transfer to Protect Against Drought Risk



## Solution features

- Insured peril: Drought
- Payments to be used to purchase energy from alternative sources when drought conditions cause lack of hydro power
- Derivative contract: between UTE, Uruguayan state-owned hydro-electric power company, and World Bank Treasury. Risk is then placed in the market
- Payment mechanics:
  - Trigger: Level of rainfall monitored at weather stations
  - Settlement: Market price of Brent crude oil
- Time horizon: January 2014– July 2015
- Transaction Size: USD 450 m
- Largest of its kind in the weather risk management market

## Involved parties

- Client: UTE (Uruguayan state-owned power company)
- Arranger: World Bank Treasury
- Risk Takers: Swiss Re and Allianz

# Case study Caribbean: CCRIF Excess Rainfall Coverage



## Solution features

- In July 2014, the CCRIF added a third peril to their program by offering excess rainfall insurance to their members
- 12 countries purchased the coverage that triggers when the modelled loss exceeds the defined country threshold
- Loses are determined based on 2-3 day rainfall totals and the country exposure values
- Utilizes Kinetic Analysis Corporation's (KAC) high resolution data that is a compilation of satellite and ground observations
- Deductible for the CCRIF is USD 7 m and Swiss Re provides reinsurance with a limit of USD 35 m

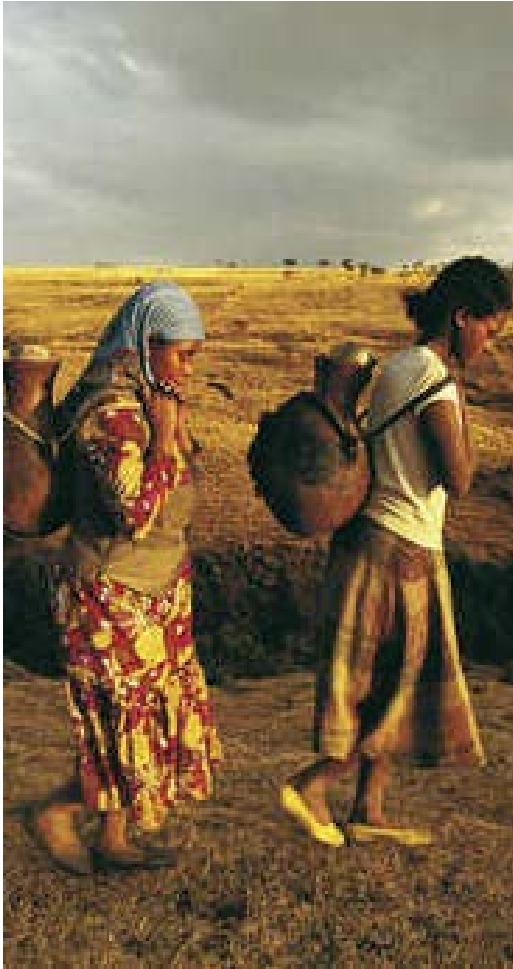
## Involved parties

- Reinsurer: Swiss Re
- Product designed by: CCRIF, KAC and Swiss Re
- Calculation agent: KAC

## Payouts to date

- Anguilla: USD 493k (Oct 2014) and USD 559k (Nov 2014)
- St Kitts and Nevis: USD1m (Nov 2014)
- Barbados: USD1.2m (Nov 2014)

# Case study African Risk Capacity: Insuring governments' drought response costs



## Solution features

- African Risk Capacity (ARC), through its insurance subsidiary ARC Insurance Ltd., is a sovereign insurance pool, which provides African governments with index-based macro drought cover (in a later stage also flood).
- It inceptioned in May 2014 with five countries and will expand over the next years to cover more countries. The pool is capitalized with USD 200 million to offer maximum cover of USD 30 million per country.
- To establish the payout rules, ARC has developed a software application, Africa Risk View (ARV), which translates satellite-based rainfall information into near real-time response cost estimates.
- Each country is required to customize and define its own insurance parameters and to submit a contingency plan, addressing the distribution of potential payouts to the affected population to ensure fast response.
- Certificate of good standing issued by ARC agency is a pre-requisite to participate in the insurance pool.

## Involved parties

- Set up as Special Agency of the African Union with support from WFP, DfID, SIDA, SDC, Rockefeller Foundation, IFAD;
- Insurance entity ARC Insurance Ltd capitalized by DfID and KfW.
- Risk transfer to international insurers and reinsurers through broker.

## Payouts to date

For 2014, Niger, Senegal and Mauritania received a combined payout of USD 26m, of which USD 16.5m to Senegal.



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