

# Climate prediction for strategic decision making

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## Filomena (January 2021)



EL CONFIDENCIAL AUTONÓMICO

4. OFERTAS EN VESTIDOS DE MANGO 8. COCHES HÍBRIDOS BARATOS

ESTADO AUTONÓMICO GALICIA EXTREMADURA CANARIAS PAÍS VASCO NAVARRA MURCIA MADRID LA RIOJA CEUTA Y MELILLA CASTILLA LA MANCHA BALEARES ANDALUCÍA  
ASTURIAS CATALUÑA CANTABRIA CASTILLA Y LEÓN COMUNIDAD VALENCIANA ARAGÓN MUY CONFIDENCIAL

EL CONFIDENCIAL AUTONÓMICO / MUY CONFIDENCIAL

### Los madrileños arrasan con todas las botas de montaña en Decathlon

A photograph of a Decathlon store interior. The focus is on a set of metal shelves that are mostly empty, indicating a large sale or clearance. A few pairs of brown mountain boots are visible on one of the shelves. To the right, there are racks of various outdoor gear, including backpacks and jackets.

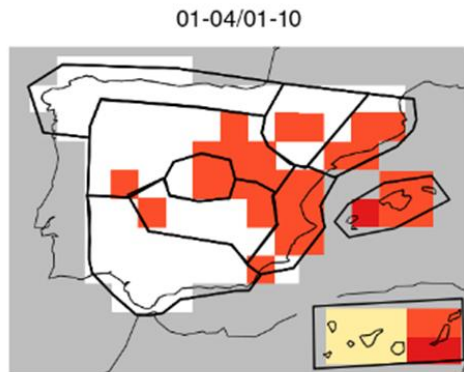
Decathlon de Nuevos Ministerios, Madrid tras la compra masiva de botas de montaña

Could climate predictions have helped the retailer to be better prepared?

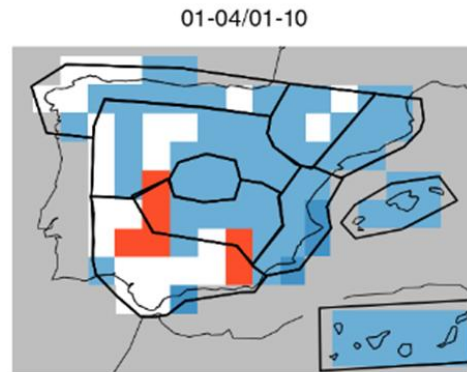


## Colder than normal conditions predicted 3 weeks in advance

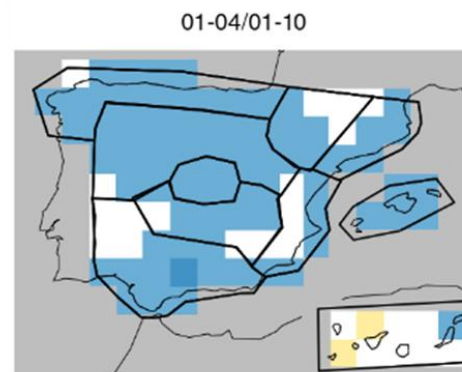
4 weeks in advance  
Forecast issued on Dec 10



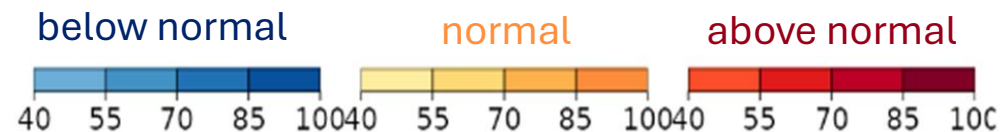
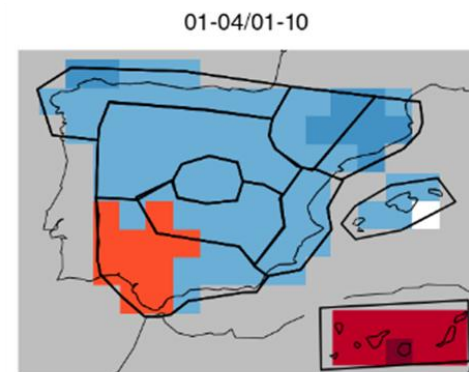
3 weeks in advance  
Forecast issued on Dec 17



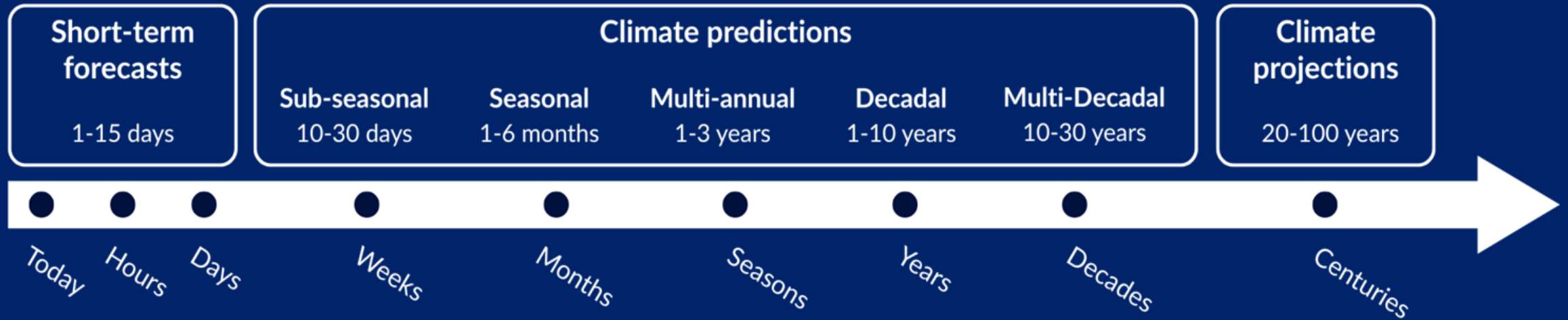
2 weeks in advance  
Forecast issued on Dec 24



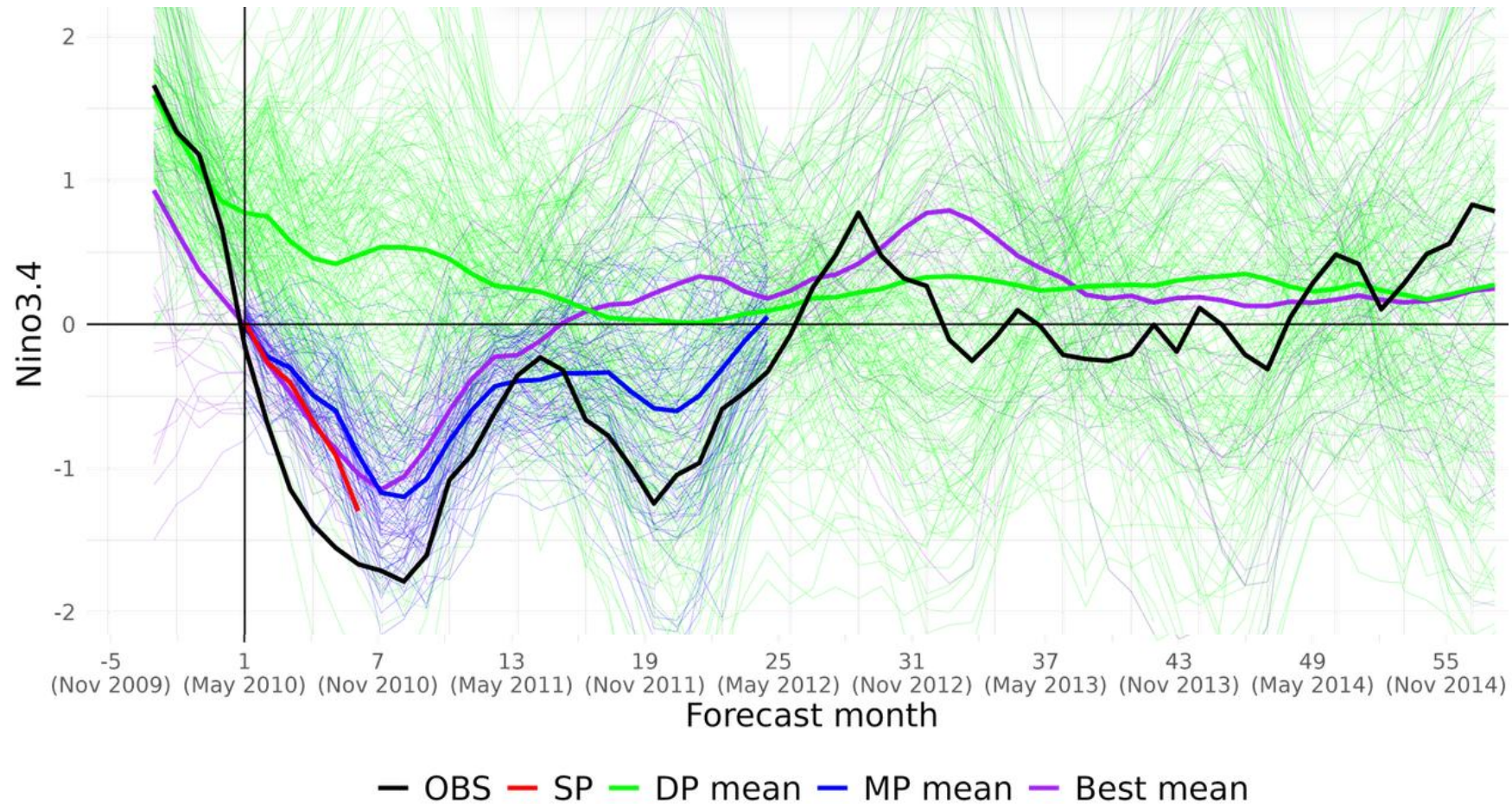
1 week in advance  
Forecast issued on Dec 31

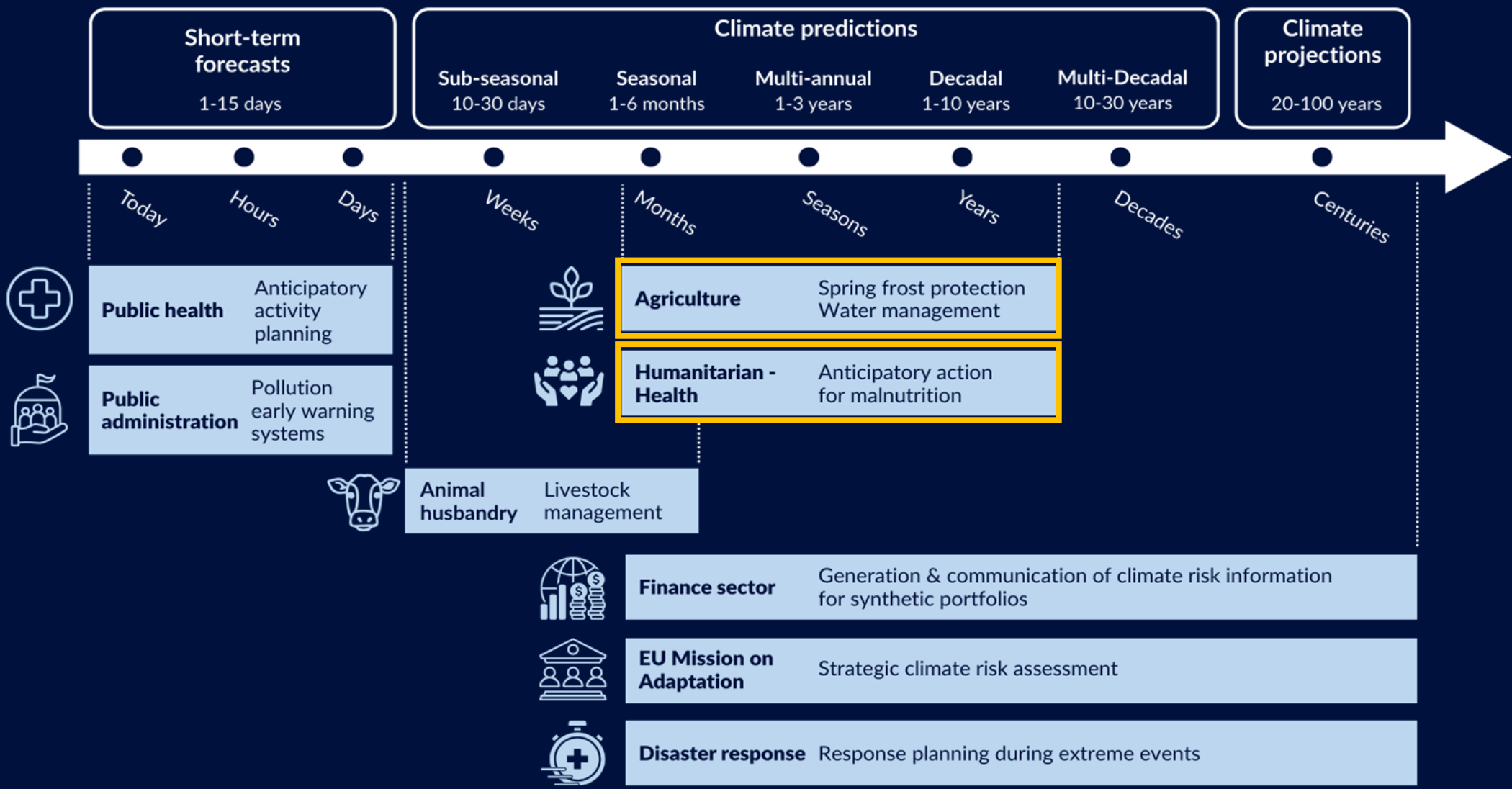


# Time horizons



## Seamless prediction integrates single predictions and eliminates "jumps"





# Viticulture

# AGRICULTURE: Climate conditions affecting vineyards



Dormancy

Sprouting

Foliation

Flowering

Fructification


Veraison


Ripening

Harvest

**Frost days**  
Crop damage  $T < 0^{\circ}\text{C}$

|   |   |
|---|---|
| <b>Activation temperatures</b><br>Depends on location and variety | <b>Heat waves (<math>&gt;35^{\circ}\text{C}</math>)</b><br>The plant uses less energy to grow |
|---|---|

 **Accumulated solar radiation**  
1500 hours of sun per year are needed

 **Precipitation**  
Precipitation forecasts help planning pruning and irrigation

 **Evapotranspiration**  
It conditions the weight of the grapes

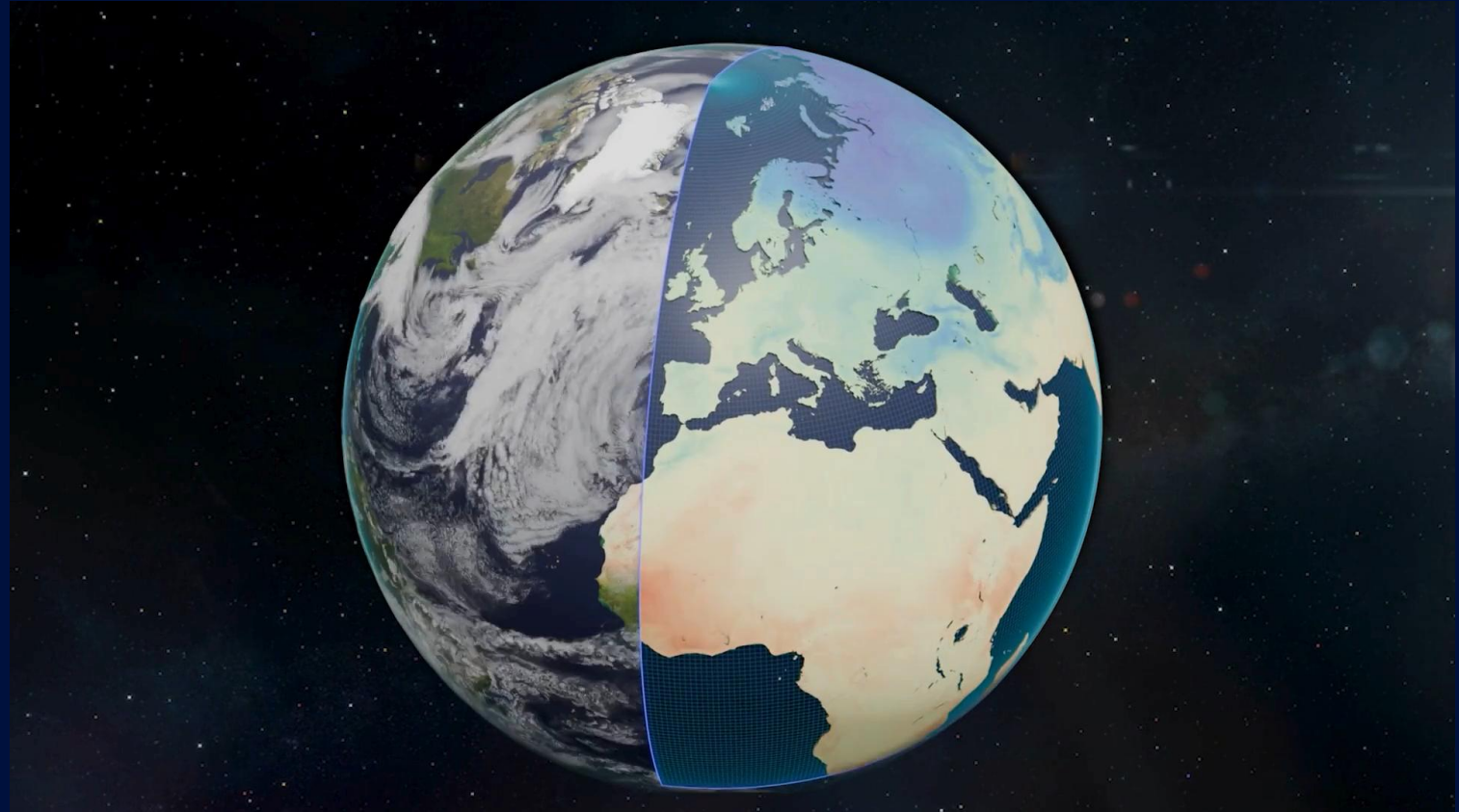
 **Mildew fungi**  
It affects leaves and appears when  $T > 10^{\circ}\text{C}$  and  $P > 10\text{l/m}^2$





# AGRICULTURE: Optimal decision-making in vineyards

- **Decision:** Spring Frost Protection
- **Model output:** support choosing the optimal decision-making strategy
- **Contingency matrix:** cost/loss data
- **Set of actions:**
  - $a_1$  = Frost protection system
  - $a_2$  = Insurance
  - $a_3$  = Crop/field management
  - $a_4$  = Purchase of grapes from external farmers

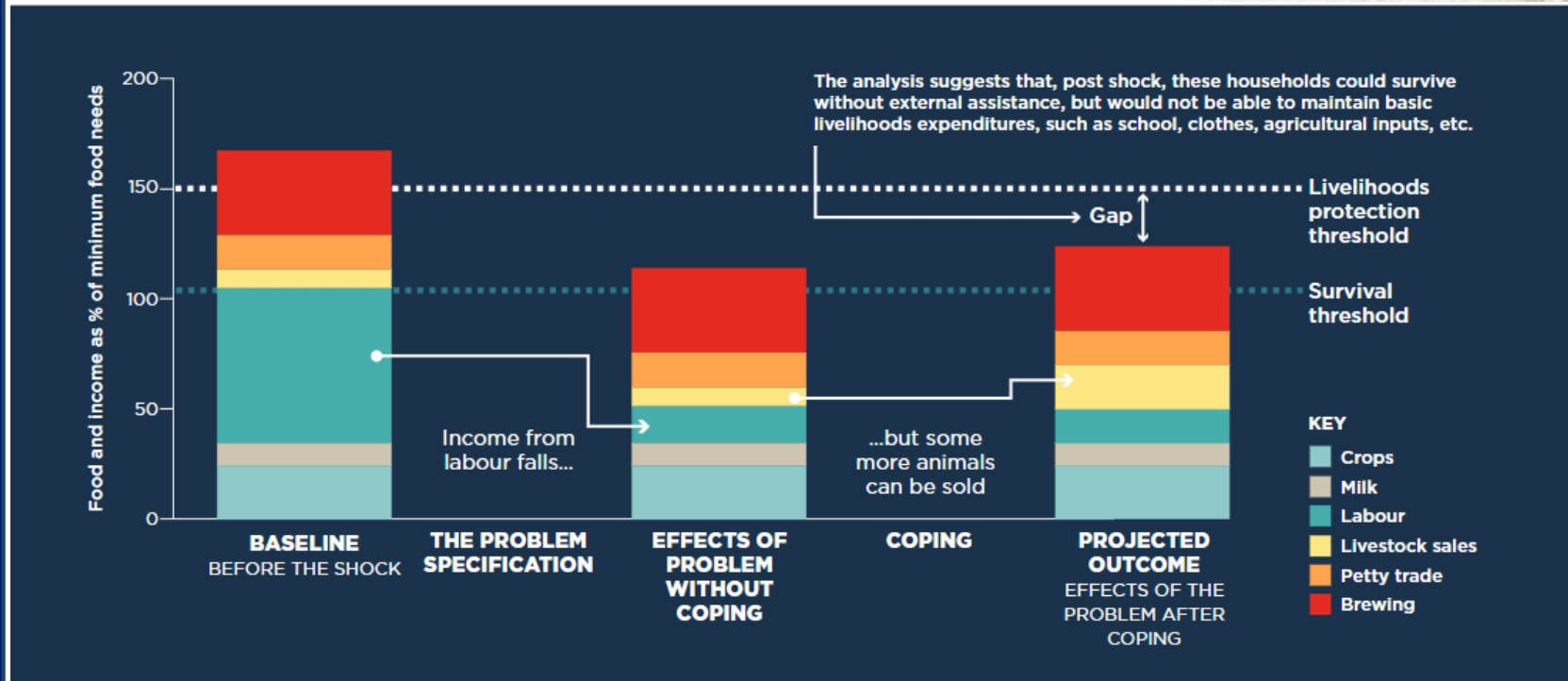


 ASPECT

# Food security - humanitarian

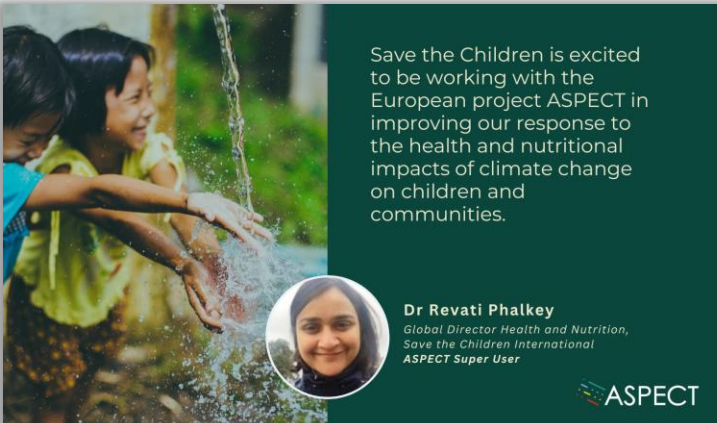
# HUMANITARIAN: Anticipatory action for food security

- Anticipate food and income deficit of families in Malawi
- Inform anticipatory action and adaptive solutions (where to allocate resources)



# CLIMATE SERVICE FOR HUMANITARIAN ORGANISATIONS

Save the Children



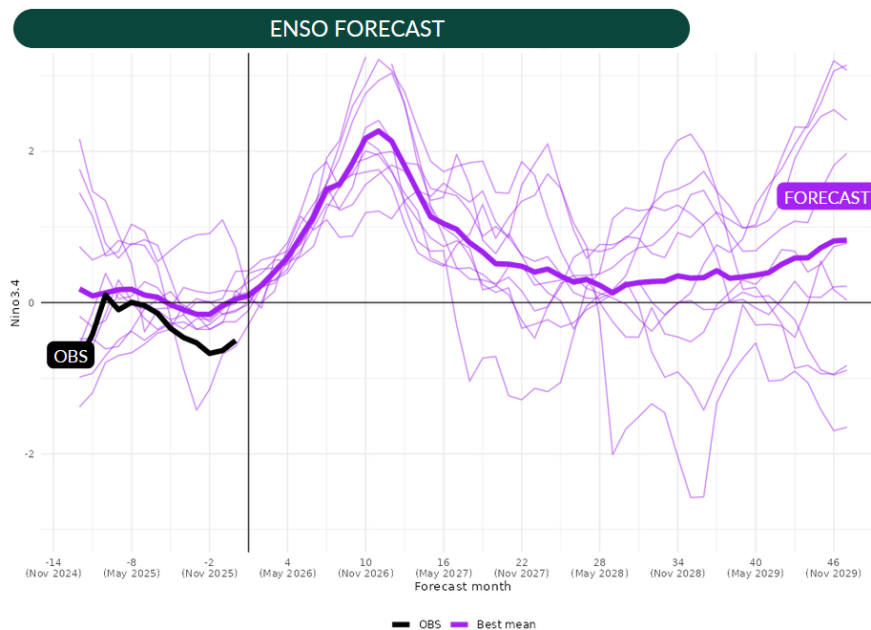
Save the Children is excited to be working with the European project ASPECT in improving our response to the health and nutritional impacts of climate change on children and communities.

**Dr Revati Phalkey**  
Global Director Health and Nutrition, Save the Children International  
ASPECT Super User

MEET THE TEAM

ASPECT

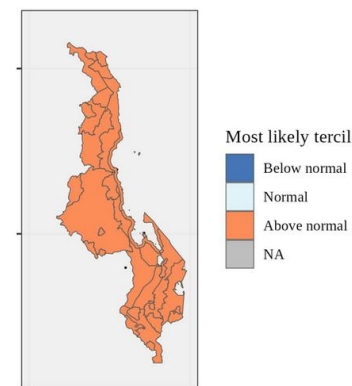
# El Niño-based seamless predictions to inform anticipatory action in Malawi



The forecasts point to El Niño conditions during the 2026-2027 rainy season, and neutral conditions during the 2027-2028 rainy season (November-April) in Malawi

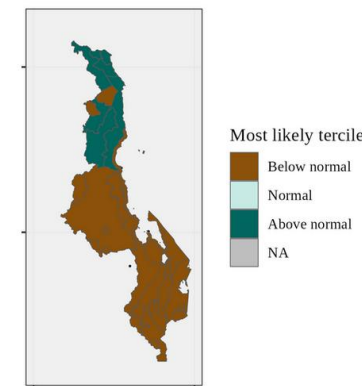
## 2026-27 rainy season

AVERAGE TEMPERATURE



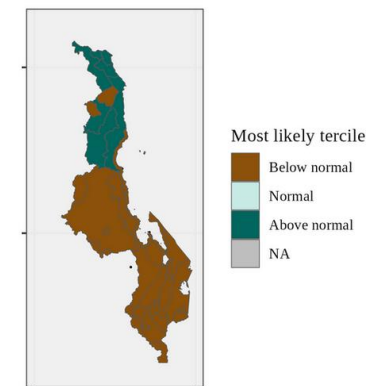
Warmer than normal conditions over the whole country

TOTAL PRECIPITATION



Above normal precipitation over the Northern region, and below normal precipitation over the Central and Southern regions

SPEI6



Wetter than normal conditions over the Northern region, and drier than normal conditions over the Central and Southern regions

# Roadmap

## CURRENT CLIMATE PREDICTIONS

Different sectors, including energy, agriculture, water management, insurance, etc.

## SEAMLESS CLIMATE PREDICTIONS

- Retail
- Viticulture
- Humanitarian
- City planning

PILOTS

*End of 2026  
(current project)*

OPERATIONALISATION

*New calls 2026-27  
Look for expressions of interest*

If your sector is impacted by  
climate, predictions can be useful  
- let's explore potential partnerships!

Thanks! 😊