

Live Discussions

WG2: Collection of ideas and uncertainties

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 Centro Euro-Mediterraneo
 per i Cambiamenti Climatici



Live Discussion

Live Discussion: Summary of key points

Short questions list and Priorities

- Ensembles and uncertainties
 - Impact models can be as complex as climate models
 - Impact models uncertainties
 - Subsetting if needed to a few "representative" of uncertainties span
- Scales: spatial and temporal
- Statistical downscaling and bias correction (calibration)
- Physical consistency (spatial, temporal, variables)
- Variable-dependent methods
- Errors: data observations and/or methods
- Limitations by datasets

Live Discussion

Two main themes for **two Working Groups**. New ideas but also critics of what we are currently doing. Identify key points.

1. *Methods and datasets requirements*: diversity of downscaling and data correction methods and datasets with strengths/limitations, wrt user needs. Trends and stationarity.

7 people

2. *Collection of ideas and uncertainties*: new approaches for the analysis of a large number of scenarios in the context of downscaling and climate impacts. Best practices to deal with climate scenarios and uncertainties.

8 people

Methods and datasets requirements: Open Discussion

- Do crop models need sub-monthly spatial correlation? Maybe only in specific circumstances.
- Hydrologic models do require sub-monthly spatial correlation.
- Gamma distribution may not generate large enough extremes
- Unsolved Problems: Sub-daily scales, spatially correlated, incorrect changes to timing of monsoon, temporal sequencing of rain events, heat. Can we change interannual variability?
- With statistical downscaling, you may be able to correct opposite correlations between GCMs and observations
- How do you remove and add rainfall and wet days
- Methods in statistical downscaling that can give physical and variable consistency.
- Stochastic model based on multivariate PDF can predict events outside of current climate

Methods and datasets requirements: Classification

- ***Methods and datasets requirements***: diversity of downscaling and data correction methods and datasets with strengths/limitations, wrt user needs. Trends and stationarity.
- **Bias Correction**: Based on daily or monthly time scale climatologies. Makes broad assumptions to exactly reproduce the PDF. Validate across climatology. Delta method, quantile mapping, local scaling, others? One parameter.
- **Statistical Downscaling**: Based on daily time scale circulations. Validate PDF and correlations. Validate time series. Analogues, transfer functions. Multiple parameters. Variable stochastic components. Analogues most deterministic, Weather Generators most stochastic

Methods and datasets requirements: Other Issues

- Sub-daily Temporal Scale: Analogues, transfer functions. GCM sub-daily data may not be reliable enough to work with. Weather Generators are likely a better option. Pick daily analogues, but assume stationarity in picking and diurnal cycles.
- Trends
- Validate Statistical Downscaling: Numerical weather prediction methods in statistical downscaling. Cannot validate on the calibration dataset.
- Observed Datasets: Lack of observations more on the research size, but stakeholders generally come with data. Individual country datasets, possibly put them together?

Methods and datasets requirements: Other Issues

- Sectors distinguished by spatial and temporal scale
- Extremes
- Temporal Sequencing
- Spatial Properties
- Minimum level of accuracy required from the models

Methods and datasets requirements: Key points WG1

- Classification matrix table of methods with capabilities (generic)
 - Complexity aspects
 - Recommendations/Best practices
 - Data availability limitations
 - Input requirements
 - Uncertainty information in the output
- Dimensions of the matrix
 - TBD