An interactive mapping platform for climate forecasts

Climate prediction and forecasting are instrumental for global decision-making and planning. Energy, water, and food security are especially impacted by extreme seasonal climate, and probabilistically reliable forecasting can facilitate risk assessment, preparation, and adaptation. Therefore, there is a need to provide easily accessible climate forecasting tools for decision-makers, who may lack expertise in climate science. The International Research Institute for Climate and Society (IRI) at Columbia University has developed Forecast Map Rooms, a web-based interface that provides a suite of climate and weather mapping tools. IRI's Seasonal Climate Forecasts give probabilistic, three-month predictions for the next six-month period for temperature and precipitation. Flexible Format Seasonal Climate Forecasts go a step further by granting users the option to specify probability or quantitative thresholds for mapping seasonal mean temperature and precipitation totals. In addition to climatic forecasts, six-day global weather forecast maps are also available for identifying the relative intensity and quantity of heavy rainfall events. This suite of tools can be applied for improving decision-making and planning through instant-access climate analysis.

IRI’s Forecast Map Rooms enable user-specified climatic data visualization

The IRI's Forecast Map Rooms enable the user to readily visualize climatic data through user-specified parameters. Multiple global climate models, run at modeling centers at US and international prediction centers, are corrected for biases and amalgamated to produce Forecast Map Rooms. Seasonal Forecast Map Rooms offer three probabilistic categories that indicate the likelihood that temperature or precipitation events will be below, above, or at near-normal levels. These 3-month categorical forecasts are with respect to the 30-year historical climatology and are updated on a monthly basis. Flexible Format Forecasts, which are also provided for three-month seasons over the next six months projection, go beyond the typical, aforementioned three-category classification and provide the full quantitative range of possibilities. They allow users to set their own temperature or precipitation threshold by quantity or historical quantile, in order to predict the likelihood that the temperature or precipitation levels will exceed (or not exceed) this value. In the six-day global weather forecasts, rainfall intensity and quantity can also be forecasted on a six-day global scale and compared in relation to historical records.

**Lead Inventor:**

International Research Institute for Climate and Society

**Applications:**

- Climatic analysis, monitoring, and forecasts
- Humanitarian decision-making and planning
- Agricultural production and food security
- Water resource management
- Emergency preparation and response
- Ecosystem protection
- Public health
- Wildfire risk assessments
- Financial instruments

**Advantages:**

- Provides seasonal climate forecasts up to six months in advance
- Facilitates instant-access, climatic data visualization via an online mapping platform
- Flexible format tailored to user-specified probability or quantitative thresholds
- Utilizes multiple, bias-corrected global climate models to produce climate forecasts
- Eliminates time invested in manual data collection and processing

**Patent Information:**

Tech Ventures Reference: CU17012, CU17015

**Related Publications:**


**Inventors**

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