



Graz Climate Change Indicators: A data portal backing climate narratives towards reaching the Paris climate goals

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The University of Graz Wegener Center has recently opened a new data portal termed Graz Climate Change Indicators (GCCCI). It is accessible via <https://gccci.earth> (present version v2) and is currently receiving a substantial further upgrade (to GCCCI v3) that will be released later in 2024. The data portal helps to bridge climate science, narratives and action and provides, in an easy-to-use way with focus on informative time series, reliable recent-past monitoring information jointly with current-state nowcasting and Paris-compliant future projection information, over the critical climate change timeframe from 1960 via the present to 2050.

In doing so, the GCCCI portal focuses on three indicator classes that span the climate change problem, and projected solution pathways, from causes to impacts: greenhouse gas emissions (GEM-GHG Emissions Monitoring), global warming (CWM-Climate Warming Monitoring), and climate change impacts in terms of weather and climate extremes (EWM-Extreme Weather Monitoring, released spring 2024). The geographic domains included (GeoDomains) range from Global (GLO) via Europe (EUR) to Austria (AT), with the countries and regions within a domain (GeoRegions) covered by relevant indicator time series (GCCCI v2 including GLO-EUR-AT domains for GEM and GLO for CWM).

We briefly introduce the overall GCCCI design, including its open data and open science approach, which is made to enable broad uptake and to support climate solution narratives on “pathways to Paris”, also linking to the co-developed climate solutions framework “Carbon Management – carbsmart2Paris” (website <https://carbmanage.earth>). We then discuss climate action and policy relevant example use cases, from backing emission reduction policymaking to creating awareness for and understanding the links from emissions via greenhouse gas concentrations and radiative forcing to global warming in terms of global surface temperature increase and other changes. These exemplary uses and related narratives intend to highlight how the easy-to-use availability, and simple-to-add expandability, of scientifically reliable recent, current, and projected climate change key data may encourage and empower actors to exercise more climate-change-aware and climate-solutions-oriented decision making.

Overall, the GCCCI data portal wants to bring, besides its value also for research and teaching, a clear added-value to policy makers, other stakeholders and the broader public, by helping science-

back their climate narratives and action efforts towards reaching the Paris climate goals.