

Representative Concentration Pathways

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The Beginner's Guide to Representative Concentration Pathways

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Welcome to the Beginner's Guide to Representative Concentration Pathways. Arranged in three parts, you can access each part by clicking on the tabs below. [Part 1](#) provides background to the scenarios used by climate scientists. [Part 2](#) describes the development of RCPs, and [Part 3](#) provides a quick reference to many of the key parameters and data (there's also a further [reading list](#) at the end). The guide is also [available as a PDF](#).

Part 1: An introduction to scenarios

Many factors have to be taken into account when trying to predict how future global warming will contribute to climate change. The amount of future greenhouse gas emissions is a key variable. Developments in technology, changes in energy generation and land use, global and regional economic circumstances and population growth must also be considered.

So that research between different groups is complementary and comparable, a standard set of **scenarios** are used to ensure that starting conditions, historical data and projections are employed consistently across the various branches of climate science.

The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) is due for publication in 2013-14. Its findings will be based on a new set of scenarios that replace the Special Report on Emissions Scenarios (SRES) standards employed in two previous reports. The new scenarios are called **Representative Concentration Pathways (RCPs)**. There are four pathways: RCP8.5, RCP6, RCP4.5 and RCP2.6 - the last is also referred to as RCP3-PD. (The numbers refer to forcings for each RCP; PD stands for *Peak and Decline*).

"The name "representative concentration pathways" was chosen to emphasize the rationale behind their use. RCPs are referred to as pathways in order to emphasize that their primary purpose is to provide time-dependent projections of atmospheric greenhouse gas (GHG) concentrations. In addition, the term pathway is meant to emphasize that it is not only a specific long-term concentration or radiative forcing outcome, such as a stabilization level, that is of interest, but also the trajectory that is taken over time to reach that outcome. They are representative in that they are one of several different scenarios that have similar radiative forcing and emissions characteristics".

Source: IPCC Expert Meeting Report, Towards New Scenarios For Analysis Of Emissions, Climate Change, Impacts, And Response Strategies, IPCC 2007

This guide to Representative Concentration Pathways assumes no prior knowledge.

In **Part 1** we explore their historical background, explain why scenarios are necessary, and who uses them. Readers already familiar with the background may wish to skip this section.

Part 2 starts with an examination of the demand for new scenarios, and why they were deemed necessary. The aims and requirements of stakeholders are described, how the development teams were selected, and the process by which the RCPs were created, checked and validated.

In **Part 3** we take a look at the scenarios in detail, consider the technical aspects, the differences between the four RCPs, and how they compare to earlier SRES scenarios.