

Attribution of Surplus CO₂ in the Atmosphere

Preprint

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There is a widely promoted misconception that Western countries are “historically responsible” for the most of the surplus CO₂ in the atmosphere. The increase in CO₂ concentration is beneficial, so it is more accurate to speak of the “historical merit”.

Regardless, when the sinks are properly taken into account, only 33% of the surplus CO₂ in the atmosphere is attributable to the US and other Western countries. The rest is attributable to China and the rest of the world, as shown in Table 1.

Table 1. Surplus CO₂ attribution by country or group of countries, 2012.

Country or group of countries	Surplus CO₂ attribution
USA	20%
Western Europe	10%
Canada + Australia	3%
China	15%
Rest of the World	51%

This analysis uses data and methodology from IPCC¹. The data is known to be skewed against the US, Western Europe, Canada and Australia. Figure 1 shows the evolution of the countries’ contributions to the surplus CO₂ levels over time, since 1880.

¹ Author is aware that IPCC (Intergovernmental Panel on Climate Change) is not a scientific organization and has no scientific authority. It has no other authority under the Constitution of the United States of America. Readers in other countries should consult their respective laws. Nothing in this article shall be construed as an acceptance or endorsement of any views, expressed by or through IPCC and/or its documents.

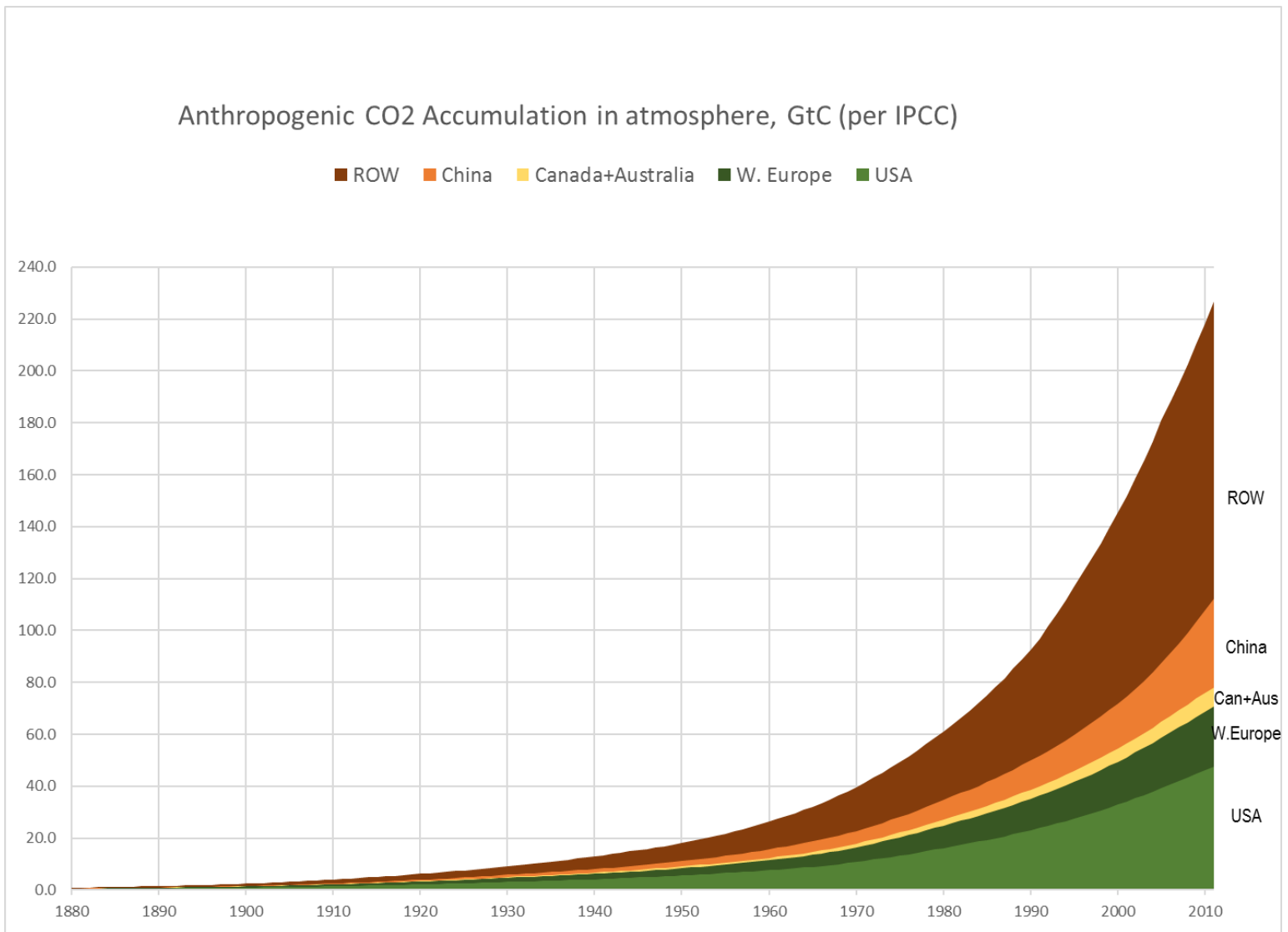


Fig. 1. Anthropogenic CO₂ accumulation in atmosphere, in accordance with IPCC views. To obtain the surplus CO₂ concentration in ppm, divide GtC by 2.13.

This graph shows low surplus CO₂ levels from 1880 to 1940.

Let me also say a few words about the carbon cycle for those who are not familiar with the topic. Carbon is one of the most prevalent elements in the Earth's crust. In the atmosphere, almost all carbon exists in the form of carbon dioxide (CO₂). There is a continuous exchange of carbon between the atmosphere and two other pools: ocean and land (biomass and detritus). The industrial revolution (1760-1840) brought about a sharp improvement in human conditions, starting in Europe and spreading to the rest of the world. Decreases in epidemics and child mortality rates caused a population increase from one billion in 1800 to more than seven billion today. By converting forests and other natural ecosystems into agricultural lands (land use change) and burning coal and other fossil fuels, humans started releasing growing amounts of CO₂ into the atmosphere. In accordance with the La Chatelier's

principle and other laws of nature, the increased (over putative equilibrium) concentration of CO₂ in the atmosphere caused its accelerated removal to other pools, which became known as sinks. IPCC went to extraordinary lengths to confuse both scientists and the broader public on this topic. But even using IPCC's own models, one can conclude that only a small fraction of the extra CO₂, released 100 years ago, is still in the air. The calculations take into account the dynamic nature of the exchange (e.g. if a molecule of CO₂ entered the ocean but another one popped out from the ocean into the atmosphere, the net effect is zero). Figure 2 below shows how little impact old CO₂ release has had on contemporary CO₂ concentrations. For example, only 9% of the CO₂ released in 1900 should be counted toward the atmospheric CO₂ in 2012.

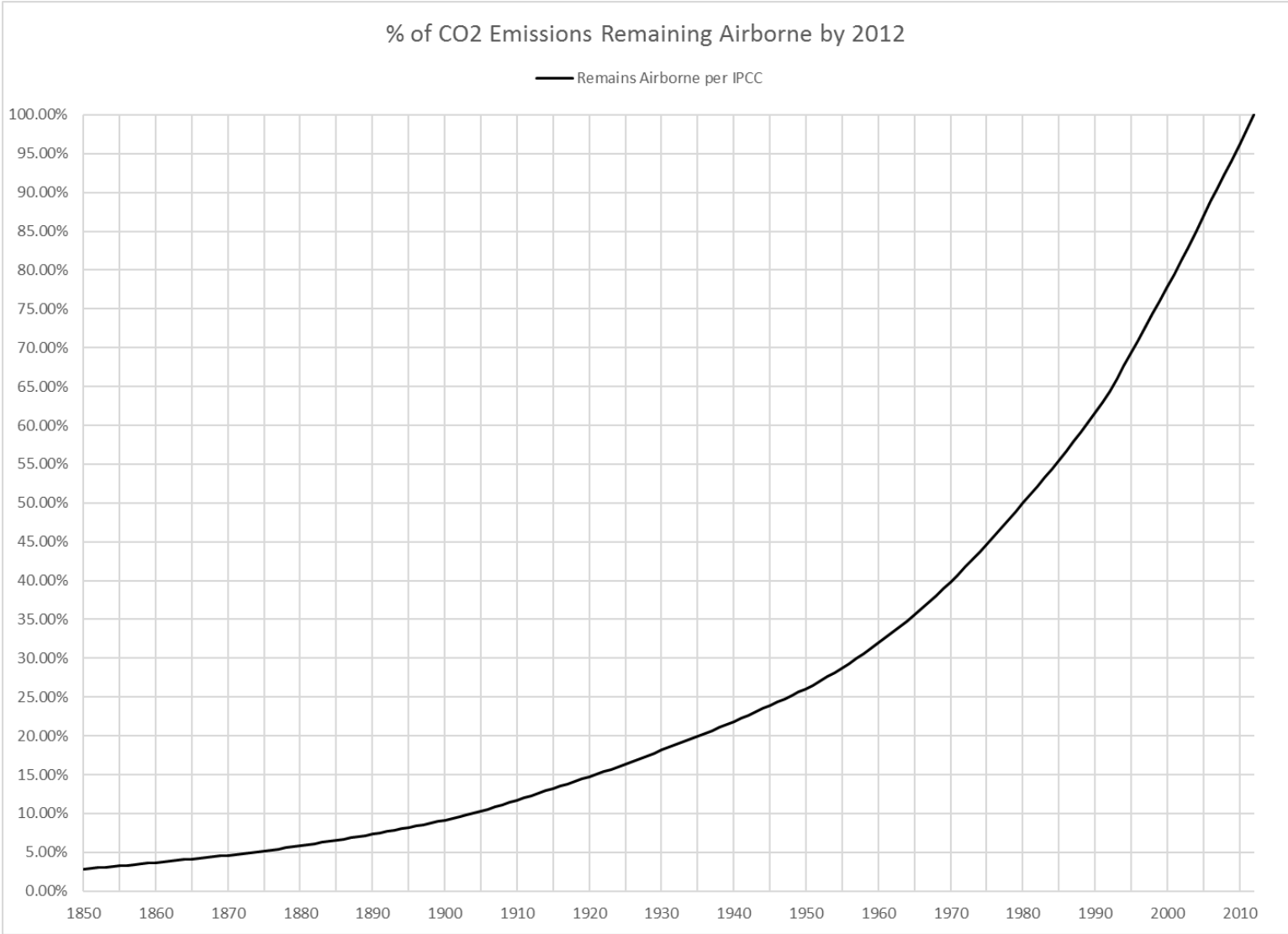


Fig. 2. Percentage of annual CO₂ release remaining in the atmosphere, in accordance with IPCC views.

[References and Supporting Information are available here.](#)