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Regional aspects of the IPCC Third Assessment Report. Assessment of climate change scenarios due to increase n greenhouse gases in the Amazon Basin.

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The release of the IPCC Third Assessment Report has brought to attention the possible impacts of the increase in the concentration of greenhouse gases in climate change in the Amazon basin, beside the possible effect of regional deforestation on climate. New models and new developments have allowed some new insight on climate change scenarios in the Amazon region, as compared to the Second Assessment report of IPCC released in 1996. The four emissions scenarios were combined with low, medium and high levels of "climate sensitivity" for all climate model projections from the PCCDDC. The combination of 'low emissions + low climate sensitivity' (B1) through to 'high emissions + high climate sensitivity' (A2) produce a range of future global warming and sea-level rise curves that span perhaps 90 per cent of likely future climates. Projected regional changes include for A2 increases in temperature between 3 to 4C while B1 suggest changes in 1-3 C, with the warming being more pronounced during winter than in summer. Changes in precipitation are inconsistent for A2, s howing increases of 5-10% during summer, while all year long the changes vary from 0+10% whole for B1 changes in projected rainfall varies from 0+5%. It is expected than rainfall reductions forecasted by the IPCC would be in addition to those expected possible due to deforestation, as proposed by numerical experiments of deforestation. For the Amazon basin, changes in temperature, precipitation and sea-level rise for Century XXI, would affect the hydrological cycle (especially evaporation) in the region, affecting biodiversity and natural ecosystems, and agricultural activities, as well as extreme weather events in the region, such as the passage of cold fronts and the presence of dry spells and rainy days. These projections exhibit a degree of uncertainty due the differences between models, since some of them exhibit problems in representing the summer-autumn rainfall maximum in northern-central Amazonia, and the fact that these projections are at regional scale, with some regional details missing since there is not an availability of downscaled climate change scenarios valid for the different sections of the basin.