Geophysical Research Abstracts
Vol. 13, EGU2011-1564-1, 2011
EGU General Assembly 2011

Ocean acidification: knowns, unknowns and perspectives

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After a brief introduction of ocean acidification, most of the presentation will focus on the levels of evidence, agreement and confidence of the consequences of ocean acidification on 15 key issues. These levels were estimated using the metrics of uncertainty recommended for use in IPCC Fifth Assessment Report. The effects on the past, present and future carbonate chemistry are known with a high degree of certainty. Most biological and ecological effects are much less certain although there is little doubt that calcification, primary production and nitrogen fixation, and biodiversity will be altered but with an unknown magnitude. These changes will in turn generate changes in the biogeochemical cycles, society and the economy. Whether these changes will be significant or not is also unknown. The key systems facing the greatest impact of ocean acidification will be identified (polar seas, deep-sea and coral reefs). The presentation also briefly reviews the main reasons of the relatively poor knowledge and provides suggestions for making faster progress in the immediate future. The ultimate goal is that the human society considers ocean acidification together with climate change to decide on the best course for its future.