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# Land-Use Change and Earth System Dynamics: Advancing the Science

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## **Land-Use Change and Earth System Dynamics: Advancing the Science**

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Quantifying the effects of land-use changes on Earth system dynamics requires adequate information on both past and future land-use activities in a format appropriate for models capable of tracking relevant impacts. This presentation will review past approaches to understanding the role of land-use change on the Earth system dynamics, and summarize new work involving 'land-use harmonization' (Hurtt et al. 2009) to advance the understanding for IPCC-AR5 and beyond. Emphasis will be placed on the importance and accuracy of historical maps, uncertainties in future projections, and key challenges for the future.

Hurtt, G. C., L. P. Chini, S. Frolking, R. Betts, J. Feedema, G. Fischer, K. Klein Goldewijk, K. Hibbard, A. Janetos, C. Jones, G. Kindermann, T. Kinoshita, K. Riahi, E. Shevliakova, S. Smith, E. Stehfest, A. Thomson, P. Thornton, D. van Vuuren, Y. Wang (2009), Harmonization of Global Land-Use Scenarios for the Period 1500-2100 for IPCC-AR5. Integrated Land Ecosystem-Atmosphere Processes Study (iLEAPS) Newsletter 7:6-8.