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Remote sensing and greenhouse gas inventory: a review of current and potential applications

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Greenhouse gas inventories of emissions and removals from the land use change and forestry sector directly utilise biogeochemical research in an international policy context. Remote sensing has been put forward as a method of supplying the necessary data for these inventories, particularly carbon fluxes from terrestrial ecosystems. Countries that are signatories to the United Nations Framework Convention on Climate Change are required to produce such inventories according to best practice guidance and to regularly update them. Such inventories are usually dependent upon land cover surveys and forest inventories that have been derived from remotely sensed information, yet the potential for the integration of remote sensing does not end there. This paper reviews operational remote sensing applications in the most recent national inventory reports published by countries around the world and suggests areas of potential development. It builds on the reviews of remote sensing and forestry by Rosenqvist et al. (2003) and Patenaude et al. (2005), but also considers the other categories within the land use change and forestry sector.