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Observations: Changes in Snow, Ice, and Frozen Ground (PDF, 8.38MB): Intergovernmental Panel on Climate Change. This section of the IPCC's Fourth Assessment Report summarizes the latest scientific understanding of changes in snow, ice, and frozen ground as indicators of climate change. Permafrost and the Changing Arctic: Earth Science System Educational Alliance (ESSEA). Study how permafrost is changing as climate change affects the Arctic. Permafrost photos. UAF Permafrost Laboratory Image Gallery: Find photos of Alaskan permafrost from the University of Alaska Fairbanks. Alaska's D Maximum extent of frozen ground has decreased The National Snow and Ice Data Center Supporting Cryospheric Research Since 1976 449 UCB University of Colorado Boulder, CO 80309 -0449. 4. 1 Introduction Physical Properties: -surface reflectivity and latent heat -presence or absence of snow or ice Cryosphere on land = 75% of worlds freshwater (7 m and 57 m rise) Currently Ice covers 10% of land 7% of oceans All parts contribute to short term climate Changes in glaciers and ice caps reflect climate variations Permafrost accounts for 24% of land in NH.Â Changes in Frozen Ground Thermokarst Lakes (a. k. a thaw lakes) Northern Hemisphere Frozen Ground Seasonally Frozen Ground Intermittently Frozen Ground. Observations: Surface and Atmospheric Climate Change. Download (24.2 MB). Graphics. 4. Observations: Changes in Snow, Ice and Frozen Ground. Download (8.4 MB). Graphics. 5. Observations: Oceanic Climate Change and Sea Level. Download (15.0 MB). Graphics.Â 7. Couplings Between Changes in the Climate System and Biogeochemistry. Download (7.8 MB). Graphics.

Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Solomon, S.; Qin, D.; Manning, M.; Chen, Z.; Marquis, M.; Averyt, K. B.; Tignor M. and Miller H. L. (eds.), Cambridge University Press, Cambridge, UK. URL: http://http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Reference type: Scientific reference.Â Greenland ice sheet. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Data providers and partners.Â European Environment Information and Observation Network (Eionet). The EEA also contributes to. Climate change 2007 : the physical science basis : contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Authors: Susan Solomon ; et al. ; Intergovernmental Panel on Climate Change. ; Working Group I. Material Type: eBook. Publisher: [S.l.] : Cambridge University Press, 2007. ISBN / ISSN / EANÂ Summary for policymakers -- Technical summary -- Historical overview of climate change science -- Changes in atmospheric constituents and radiative forcing -- Observations: atmospheric surface and climate change -- Observations: changes in snow, ice and frozen ground -- Observations: ocean climate change and sea level -- Palaeoclimate -- Coupling between changes in the climate system.