

Determining Ice Water Content from 2D crystal images

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With the proposed method : are slightly underestimated. Best results are obtained for Dmax. O it is possible to compute TWC from solely the optical array probe data, for Ν various size definitions, with a 20% accuracy; С • the parameterizations established for α and β provide time-varying values that Fontaine, E., A. Schwarzenboeck, J. Delanoë, W. Wobrock, D. Leroy, R. Dupuy, C. Gourbeyre, and A. Protat, Е reflect changes in the ice crystal habits (through the description of the area IJ F 2014: Constraining mass-diameter relations from hydrometeor images and cloud radar reflectivities in tropical and perimeter-size relationships) and the sample conditions (through S Е continental and oceanic convective anvils. Atmos Chem Phys, 14, 11367–11392, doi:10.5194/acp-14-11367-2014. temperature). Ε Leroy D., E. Fontaine, A. Schwarzenboeck and J. W. Strapp, 2016: On the computation of median mass 0 Ν The method can be used to provide TWC values for previous flight campaigns diameters. J. Atmospheric Ocean. Technol., Under review. С Ν where bulk TWC measurements are not available. Е S S Acknowledgements: The research leading to these results has received funding from (i) the European Union's Seventh Framework Program in research, technological development and demonstration under grant agreement n°ACP2-GA-2012-314314, (ii) the European Aviation Safety Agency (EASA) Research Program under service contract n° EASA.2013.FC27, and (iii) the Federal Aviation (FAA), Aviation Research Division, and Aviation Weather Division, under agreement CON-I-1301 with the Centre National de la Recherche Scientifique. Funding to support the Darwin flight project was also provided by the NASA Aviation Safety Program, the Boeing Co., and Transport Canada. Additional support was also provided by Airbus SAS Operations, Science Engineering Associates, the Bureau of Meteorology, Environment Canada and Universities of Utah and Illinois. The authors thank the SAFIRE facility for the scientific airborne operations. SAFIRE (http://www.safire.fr) is a joint facility of CNRS, Météo-France and CNES dedicated to flying research aircraft.

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