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Atmospheric Measurement Techniques Discussions

Interactive comment on "A new airborne tandem platform for collocated measurements of microphysical cloud and radiation properties" *by* W. Frey et al.

W. Frey et al.

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The authors like to thank the referee for his/her review.

Question: How does the yaw angle of the plane affect AIRTOSS?

Reply: In general the yaw angle is the rotation about a vertical axis. Thus, the yaw angle is always related to a specified coordinate system. There are two options:
Option one: yaw angle is related to the meteorological coordinate system (x = east, y = north, z = altitude). Thus, yaw angle is equal to the heading. The way the heading affects the flight behaviour of AIRTOSS is described in detail in Section 4.1.3. Any change in heading will cause the AIRTOSS to roll. This correlation is shown in Fig. 5a.
Option two: yaw angle is related to the inertial coordinate system of the centre of

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gravity of the aircraft (x = horizontal in the direction of movement, y = horizontal to the right, z = downwards). In this case, the yaw angle is equal to the sideslip, i.e. the angle between the plane's longitudinal axis and the direction of movement. In case of a constant sideslip on the aircraft there are no effects on the AIRTOSS flight behaviour. A change of sideslip on the Learjet could cause a small acceleration of the AIRTOSS. Presumably this effect is very small and not observable in the data.
In any case, data that were acquired in a period of strong changes (as change of heading, altitude, TAS, towing cable length, etc.) have been rejected to ensure the quality of the measurements.

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