Time series
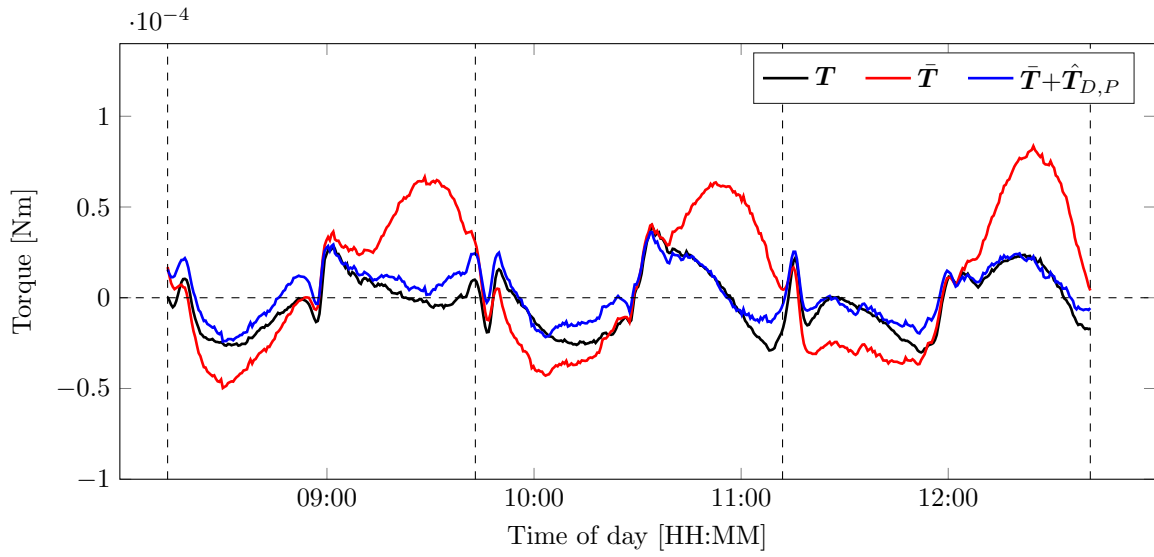
GOCE Aerodynamic Torque Modeling
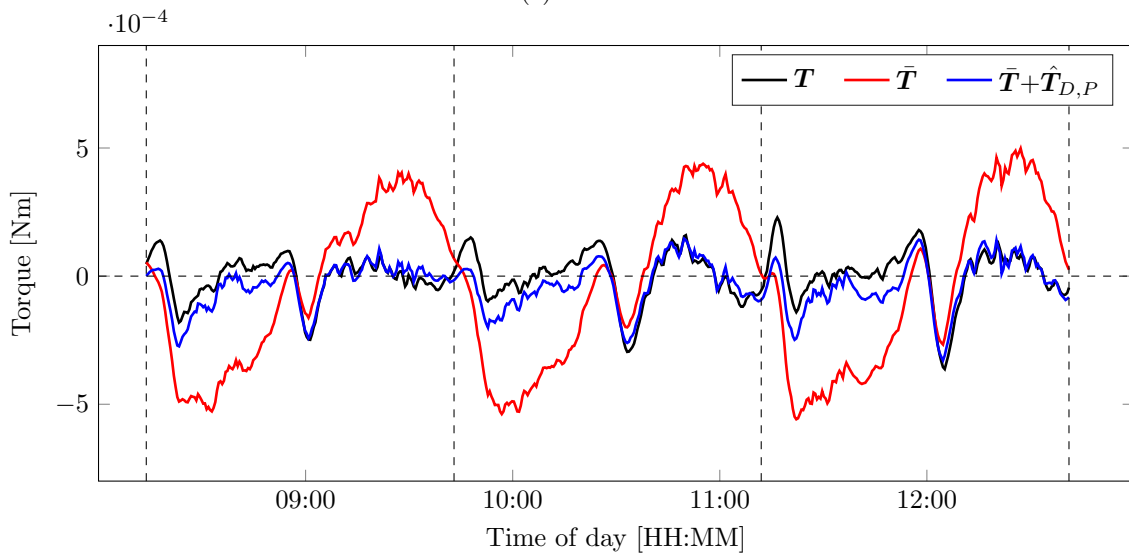T. Visser, E.N. Doornbos, C.C. de Visser, P.N.A.M. Visser
Faculty of Aerospace Engineering, Delft University of Technology, Delft, The Netherlands
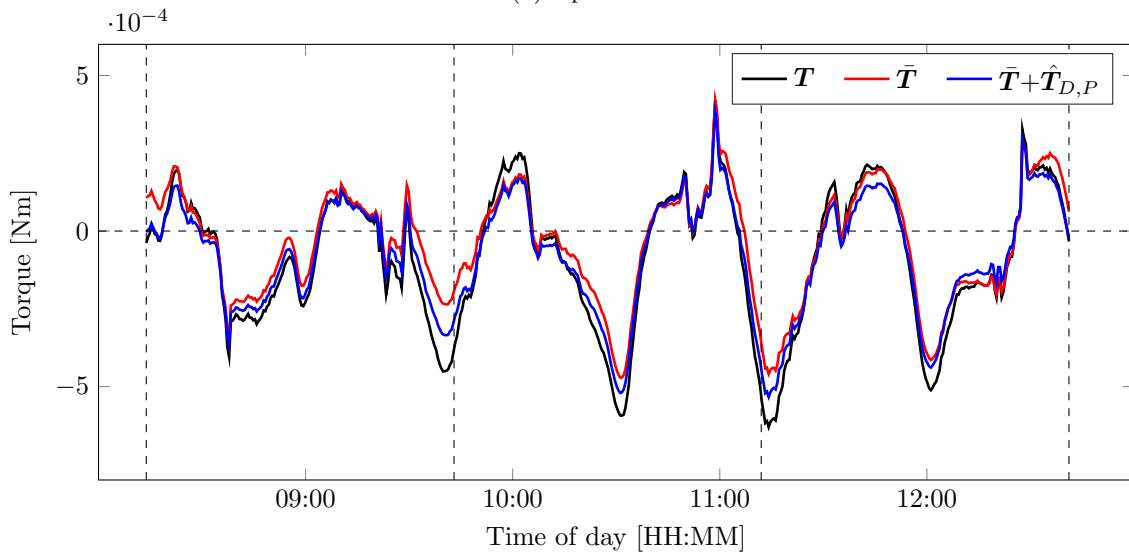B. Fritsche
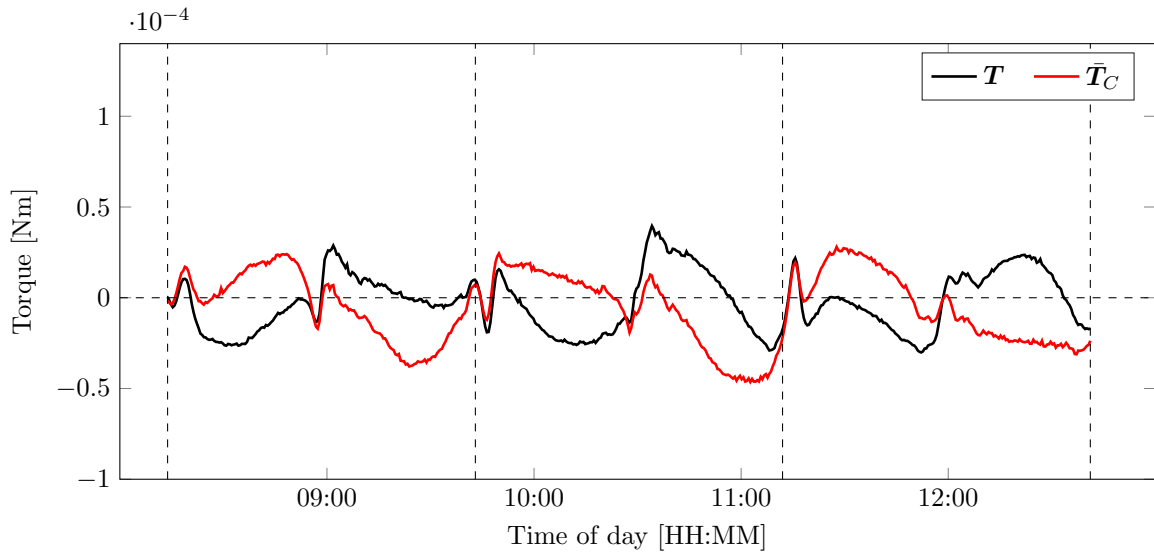*Hyperschall Technologie Göttingen GmbH, Katlenburg-Lindau, Germany*
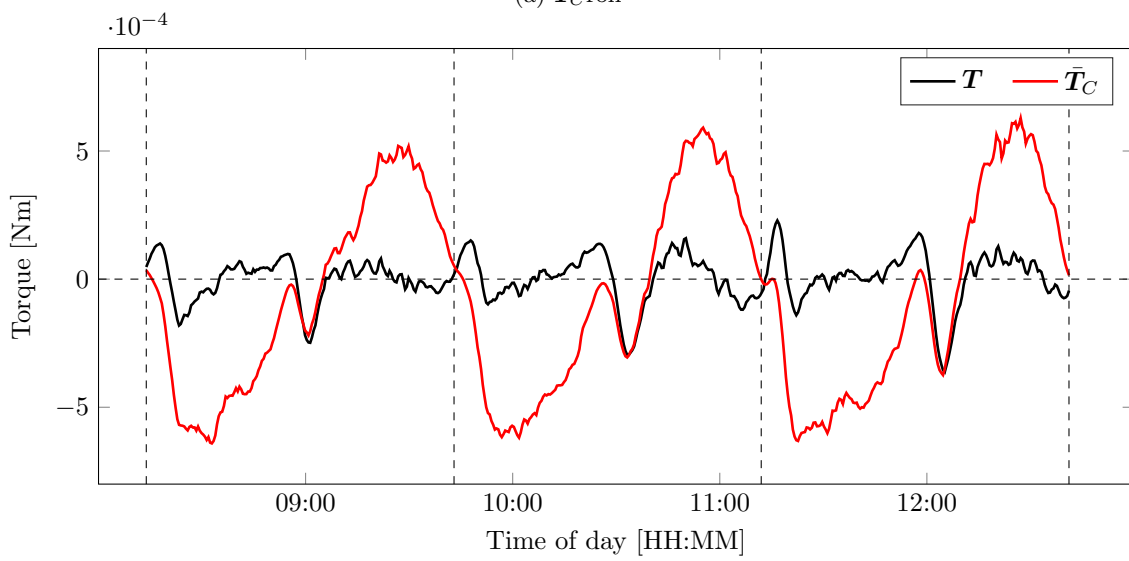
(a) $\bar{T}$roll

(b) $\bar{T}$pitch

(c) $\bar{T}$yaw

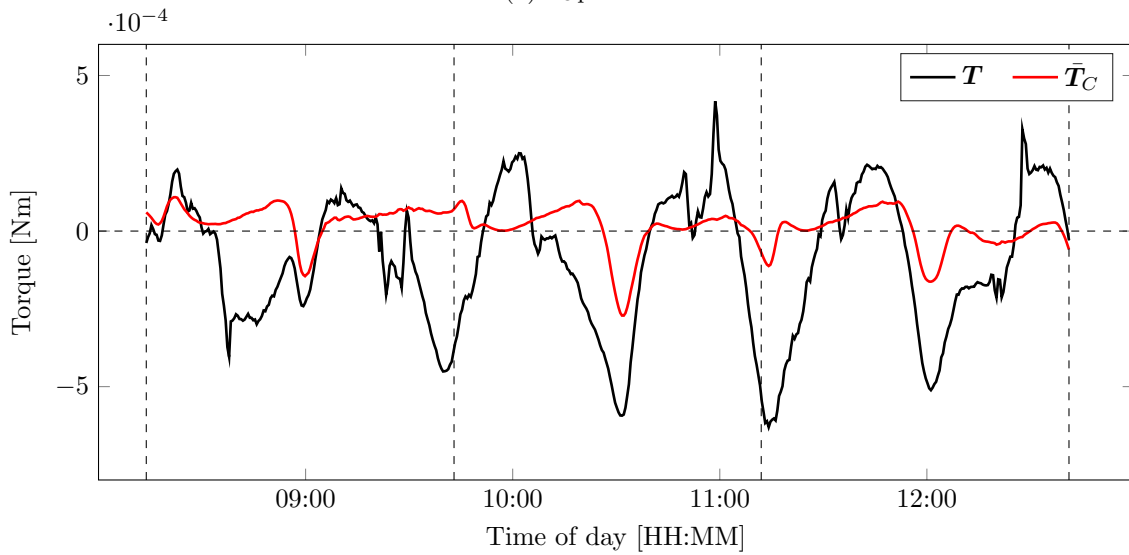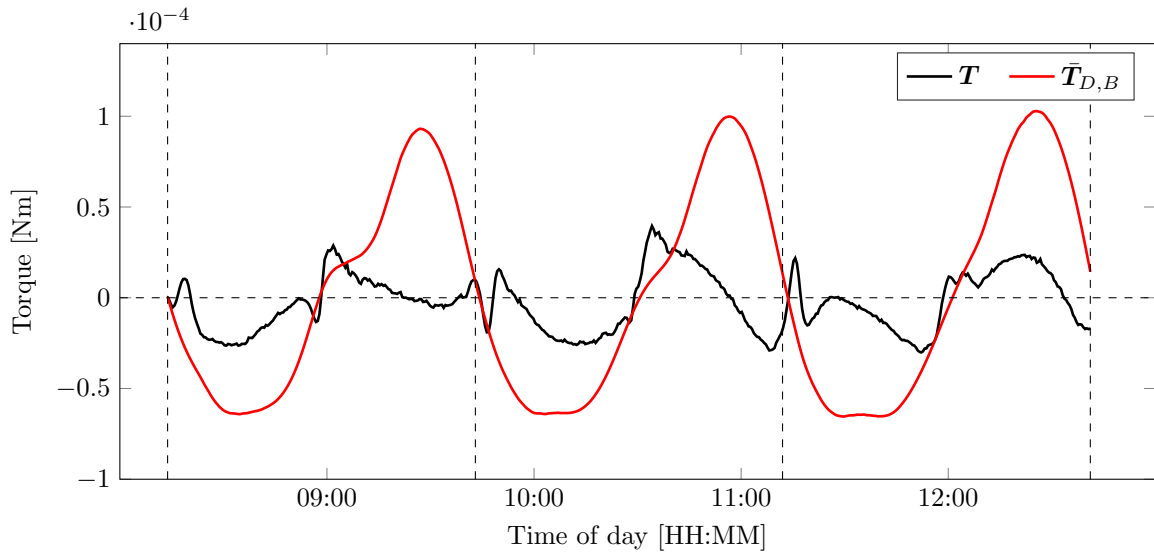Figure 1: Total modeled torque $\bar{T}$ as a function of time, on October 16, 2013.

(a) $\bar{\boldsymbol{T}}_C$ roll

(b) $\bar{\boldsymbol{T}}_C$ pitch

(c) $\bar{\boldsymbol{T}}_C$ yaw

Figure 2: Magentic control torque $\bar{\boldsymbol{T}}_C$ as a function of time, on October 16, 2013.

(a) $\bar{\boldsymbol{T}}_{D,B}$roll
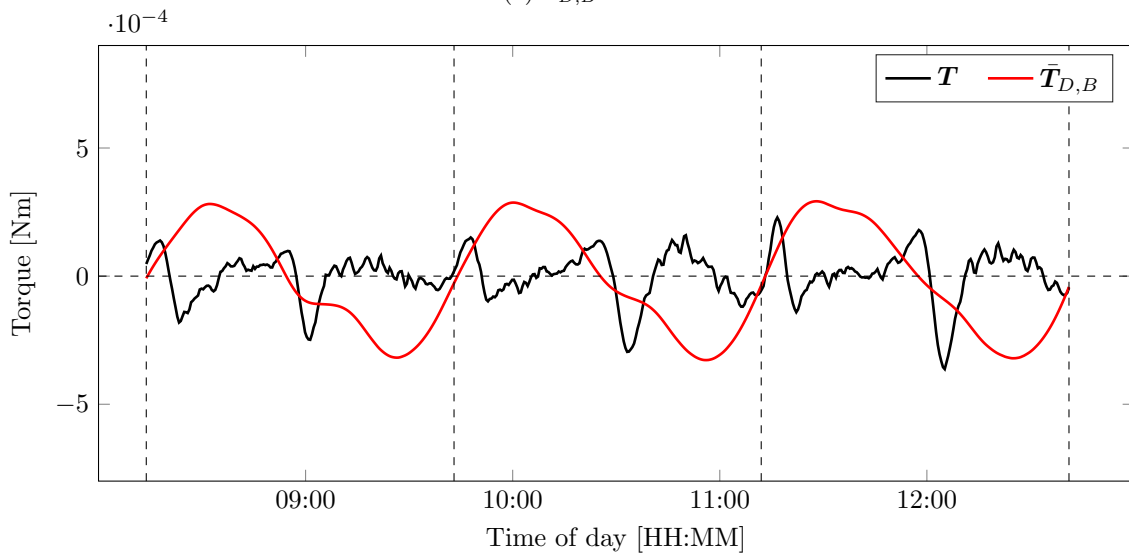
(b) $\bar{\boldsymbol{T}}_{D,B}$pitch
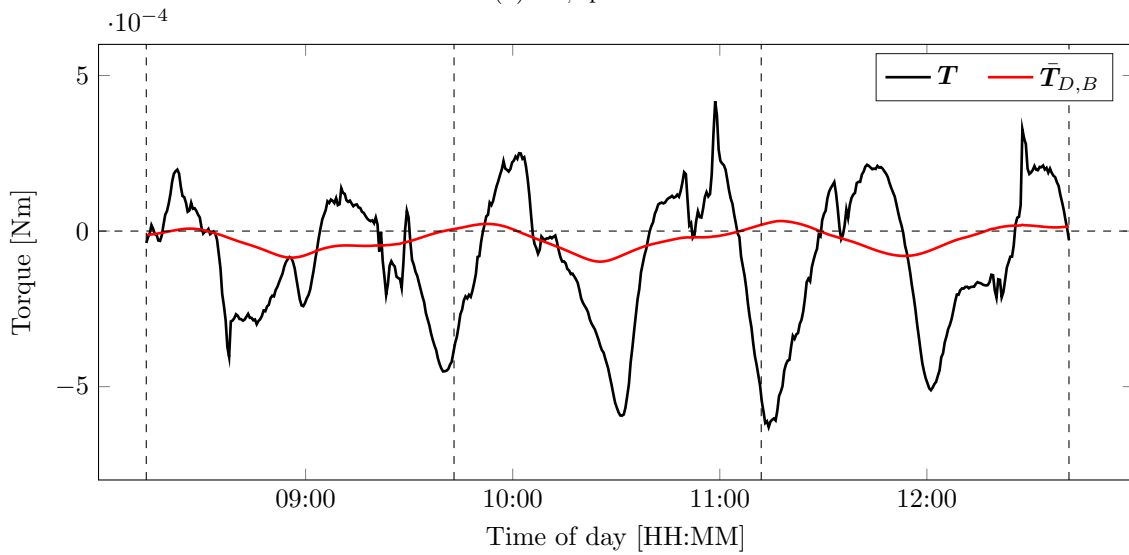
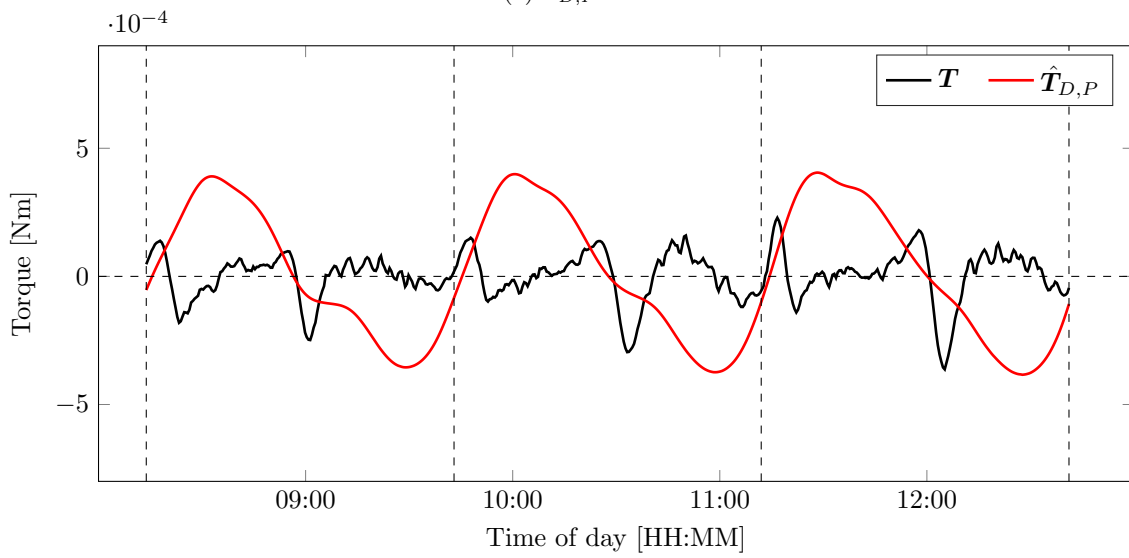(c) $\bar{\boldsymbol{T}}_{D,B}$yaw

Figure 3: Residual bus dipole torque $\bar{\boldsymbol{T}}_{D,B}$ as a function of time, on October 16, 2013.
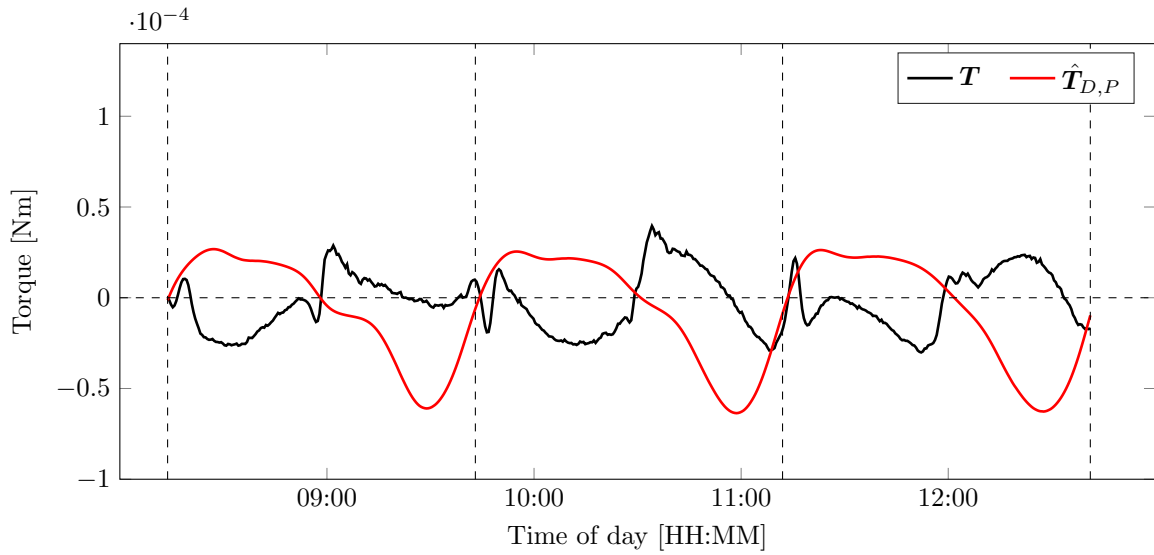
(a) $\hat{\boldsymbol{T}}_{D,P}$roll
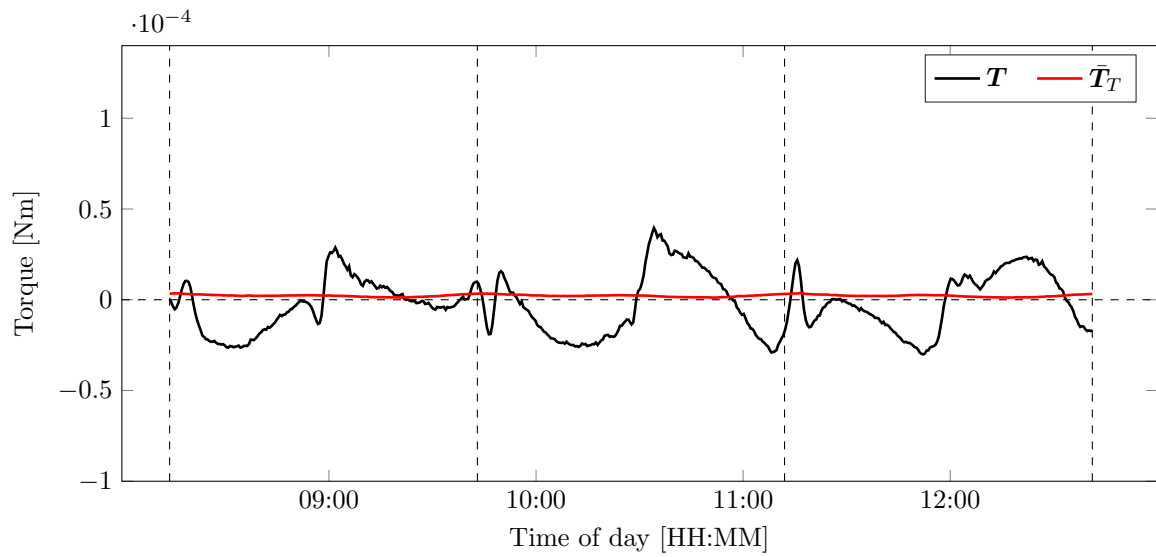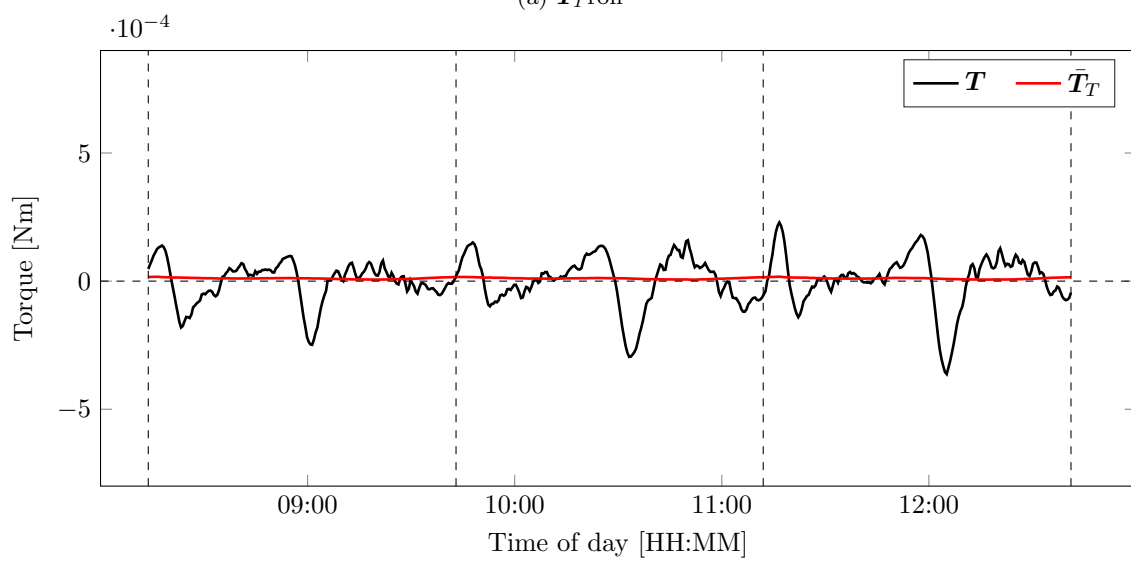

(b) $\hat{\boldsymbol{T}}_{D,P}$pitch
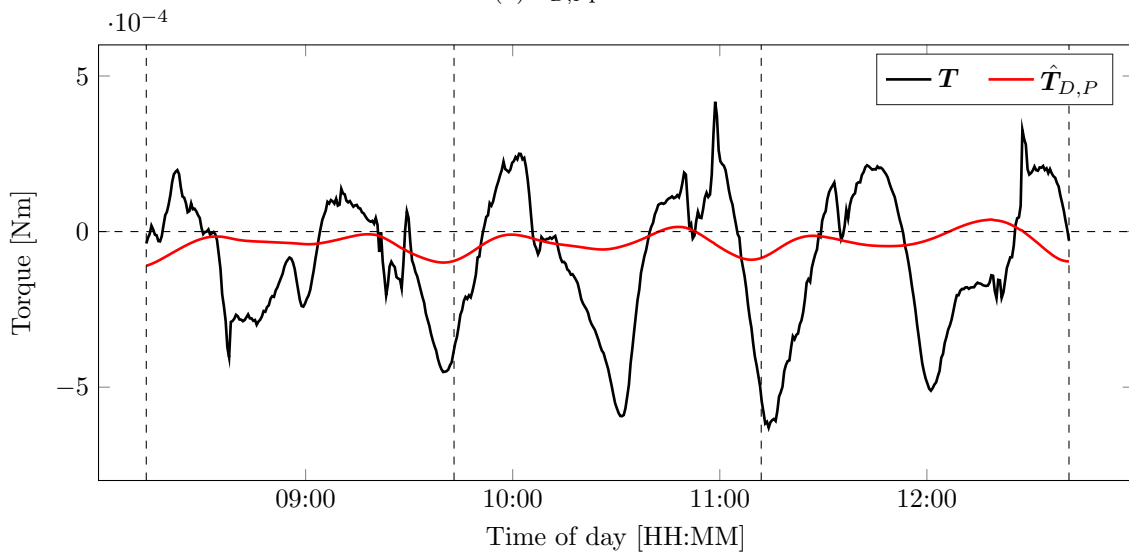
(c) $\hat{\boldsymbol{T}}_{D,P}$yaw

Figure 4: Fitted payload dipole torque $\hat{\boldsymbol{T}}_{D,P}$ as a function of time, on October 16, 2013.

(a) $\bar{\boldsymbol{T}}_T$roll
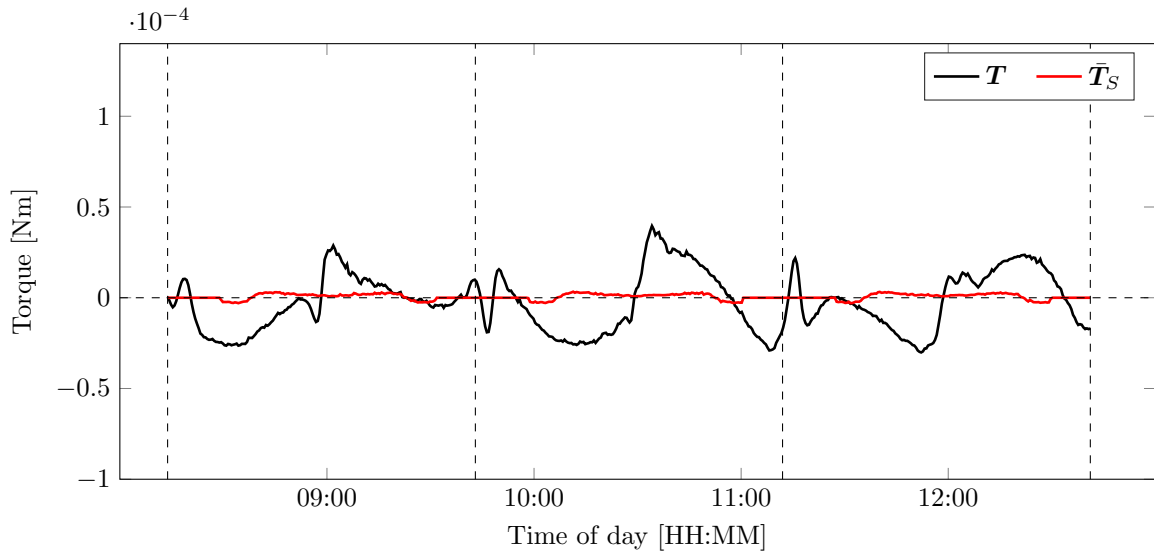

(b) $\bar{\boldsymbol{T}}_T$pitch
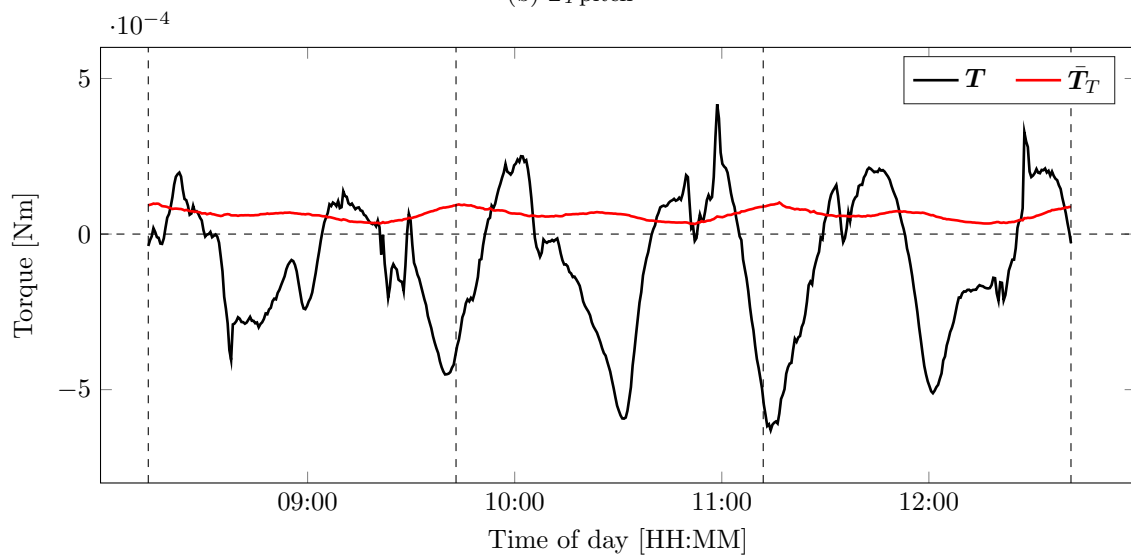
(c) $\bar{\boldsymbol{T}}_T$yaw

Figure 5: Thruster misalignment torque $\bar{\boldsymbol{T}}_T$ as a function of time, on October 16, 2013.

(a) $\bar{\boldsymbol{T}}_S$roll
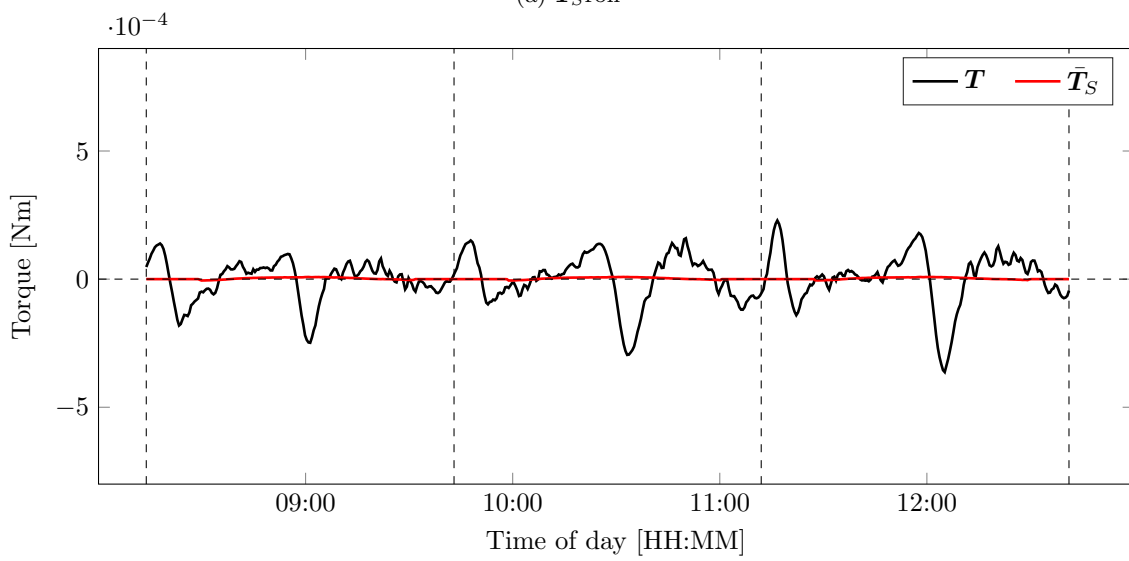
(b) $\bar{\boldsymbol{T}}_S$pitch
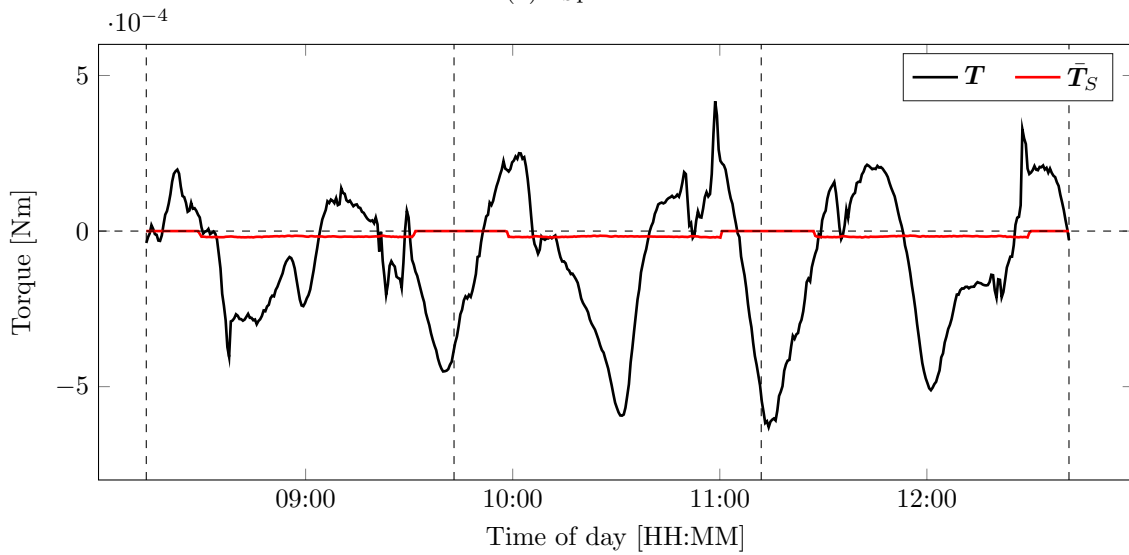
(c) $\bar{\boldsymbol{T}}_S$yaw

Figure 6: Solar radiation pressure torque $\bar{\boldsymbol{T}}_S$ as a function of time, on October 16, 2013.

(a) $\bar{T}_{D,T}$ roll
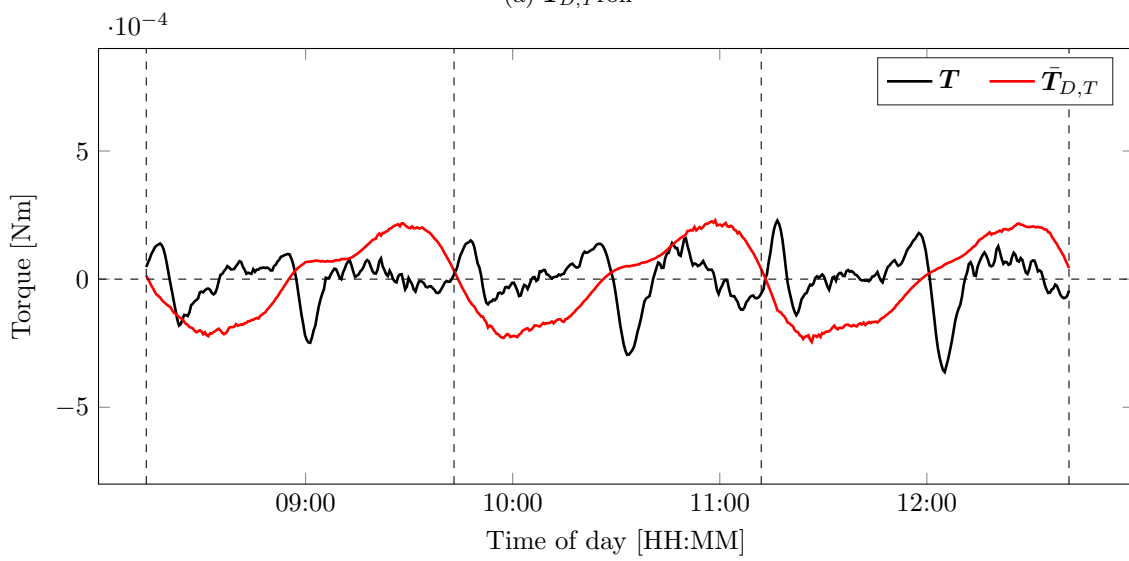

(b) $\bar{T}_{D,T}$ pitch
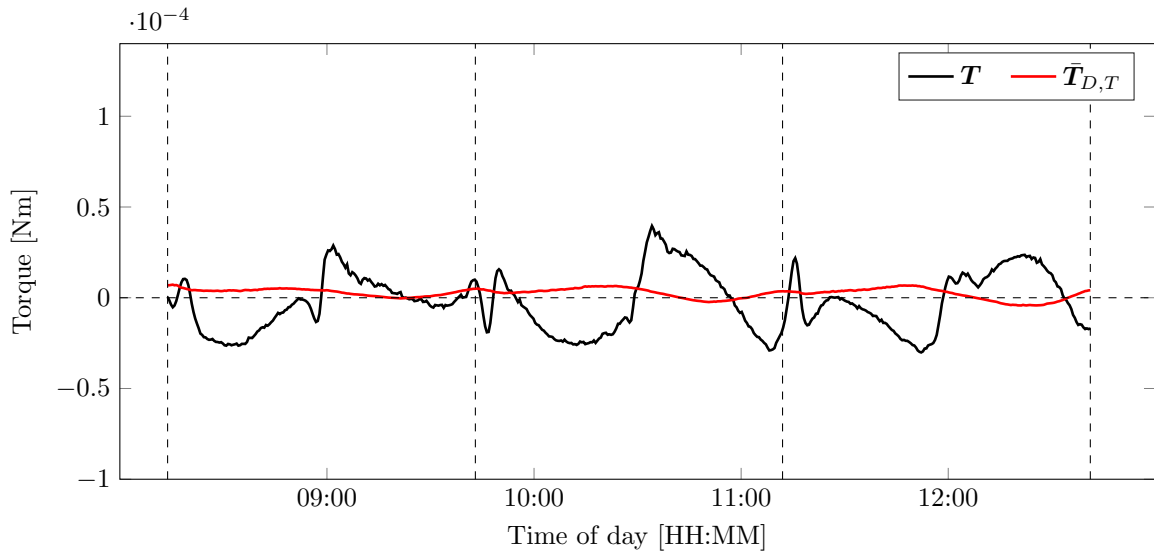

(c) $\bar{T}_{D,T}$ yaw
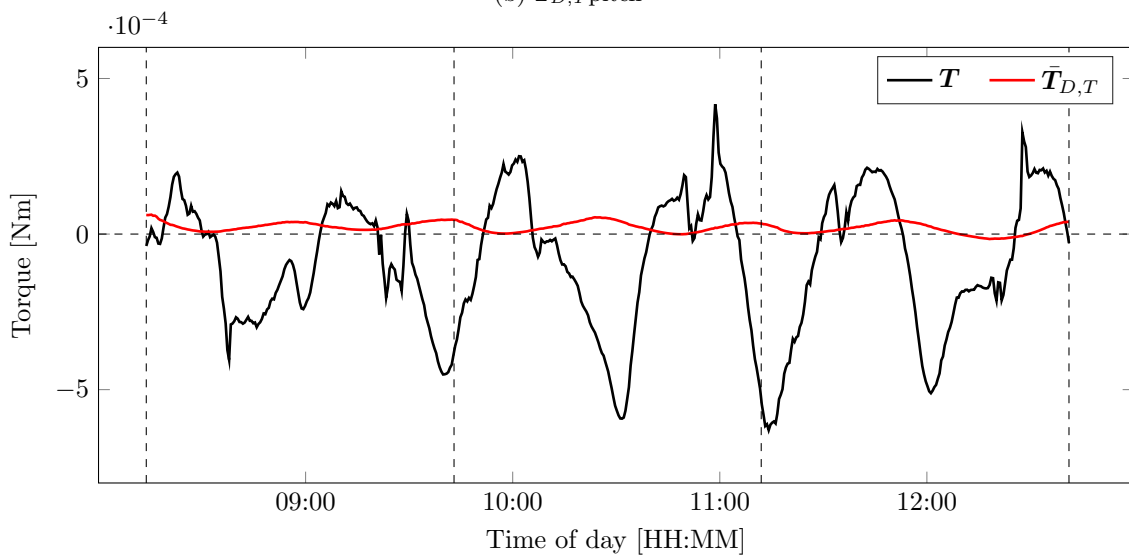
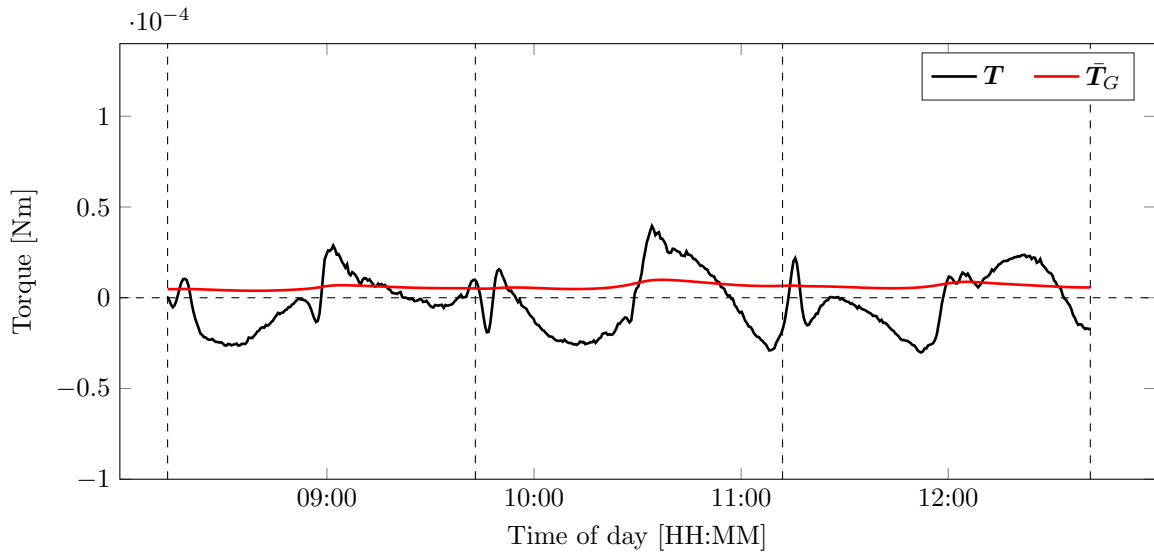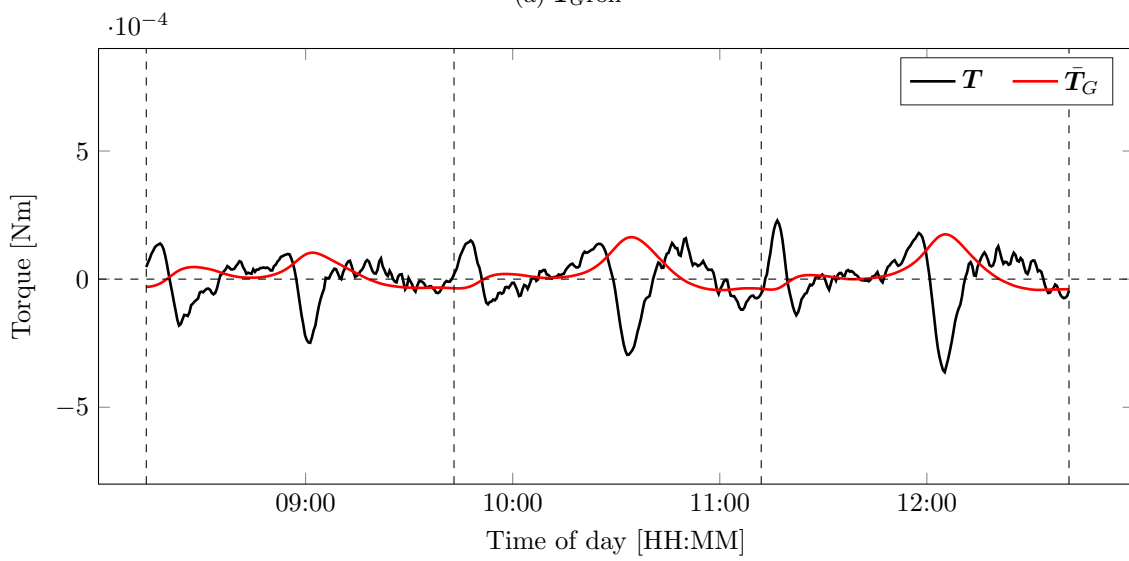Figure 7: Thruster dipole torque $\bar{T}_{D,T}$ as a function of time, on October 16, 2013.

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(a) $\bar{\boldsymbol{T}}_G$roll

(b) $\bar{\boldsymbol{T}}_G$pitch
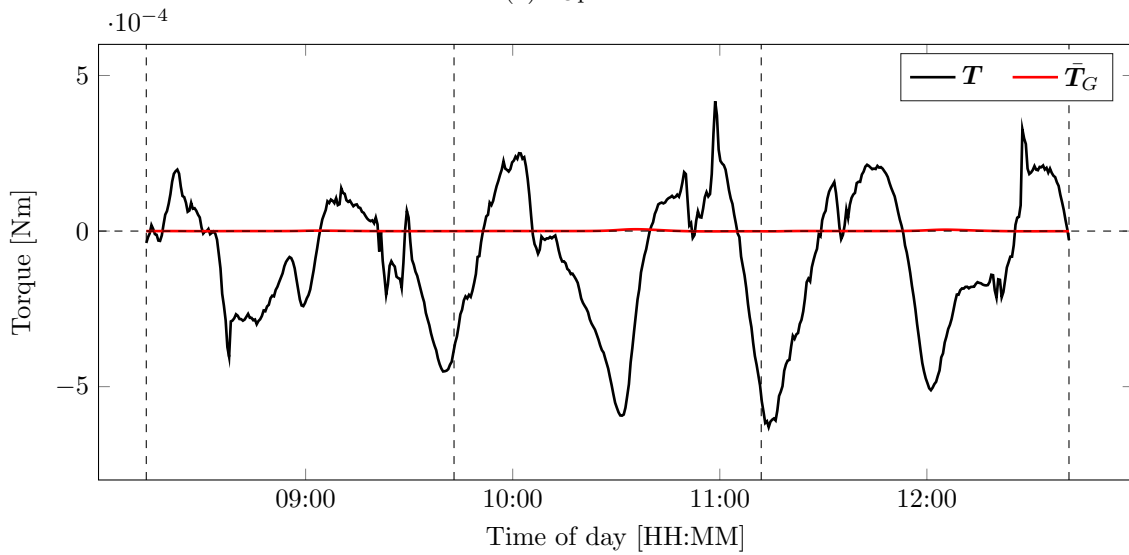
(c) $\bar{\boldsymbol{T}}_G$yaw

Figure 8: Gravity gradient torque $\bar{\boldsymbol{T}}_G$ as a function of time, on October 16, 2013.
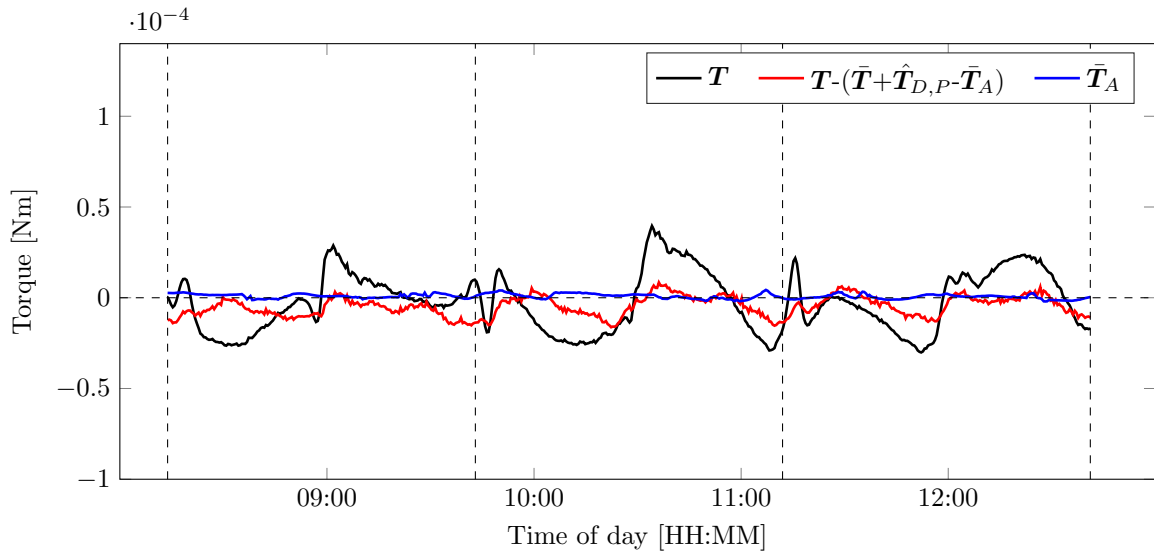
(a) $\bar{\boldsymbol{T}}_A$ roll
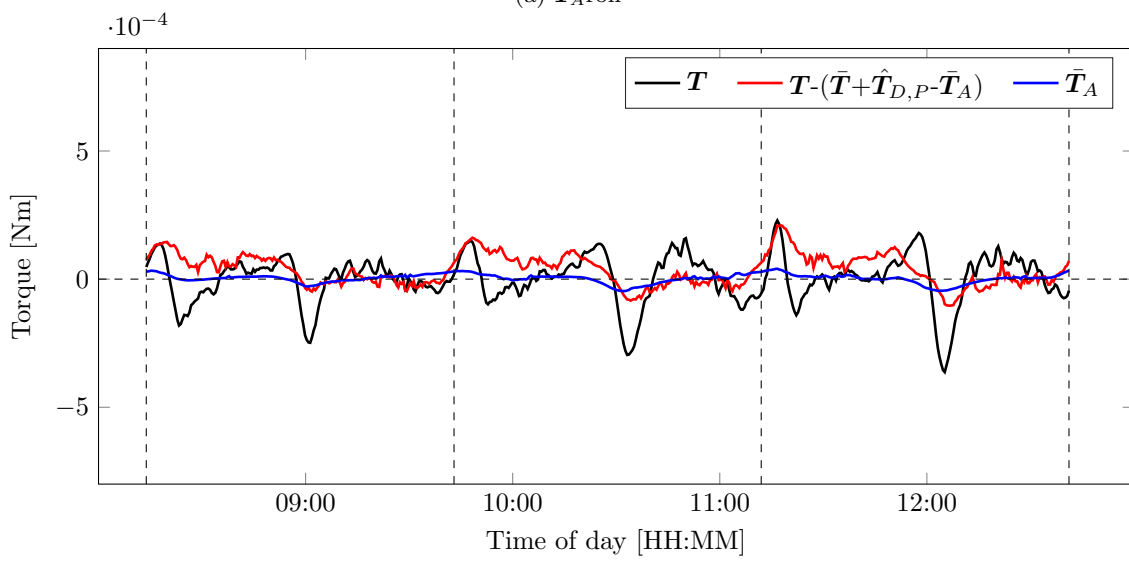
(b) $\bar{\boldsymbol{T}}_A$ pitch
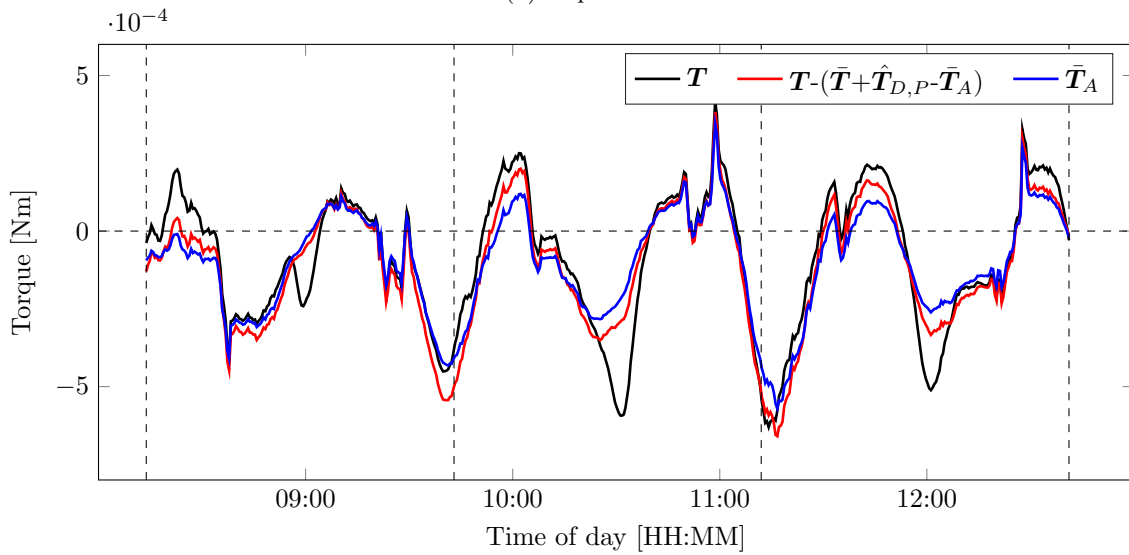
(c) $\bar{\boldsymbol{T}}_A$ yaw

Figure 9: Aerodynamic torque $\bar{\boldsymbol{T}}_A$ as a function of time, on October 16, 2013.