1. About the data set

Site name (three letter code)	Teshio CC-LaG experiment site (TSE)
Period of registered data	From January 1 2002 to December 31 2002
This document file name	GfNr_TSE_2002_30m_01-2.pdf
Corresponding data file name	GfNr_TSE_2002_30m_01-2.csv

Revision information

Date	Details of revision	Renewed file name
18 April 2008	First registration	GfNr_TSE_2002_30m_01.pdf GfNr_TSE_2002_30m_01.csv SiIn_TSE_2007_03.pdf
6 October 2022	DOI (Digital Object Identifier) was assigned. The contact person#2 was updated. The citation format was described in the other information.	GfNr_TSE_2002_30m_01-2.pdf GfNr_TSE_2002_30m_01-2.csv SiIn_TSE_2007_04.pdf

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Other Information	When this data set is referred to in publications, it should be cited in the following format. Takagi and Takahashi (2022), Micrometeorological CO_2 Flux Data at Teshio CC-LaG Experiment site (TSE), Ver.x.x *1, National Institute for Environmental Studies, DOI:10.17595/20221006.001. (Reference date *2: YYYY/MM/DD) *1 The version number is indicated in the name of each data file. *2 As the reference date, please indicate the date you downloaded the files.

2. Explanation of gap-filling

We filled the gaps in NEE data mainly by using lookup tables to estimate the annual sum (Falge *et al*. 2001). Tables were created every 30 days during snow-free periods, and one table was created for the snow-covered period. During the snow-free periods, 30-min NEE values were compiled for each air temperature (2 °C interval) × PPFD (100 μmol m^{-2} s^{-1} interval) class. Air temperature at 32 m was used as the lookup class. During the snow-covered period, NEE values were compiled for each temperature (2 °C interval) × wind speed (1 m s^{-1} interval) class. Both environmental factors were obtained at 32 m. Wind accelerated the mass transfer through the snowpack (Takagi *et al*. 2005) so wind speed was used as the environmental factor for the lookup table during the snow-covered period. A few data gaps were not filled by the lookup tables, mainly owing to the lack of environmental data. These gaps were filled by the mean diurnal variation (MDV) approach (Falge *et al*. 2001), in which missing NEE was replaced by the mean for that time based on the adjacent 9 days. The few remaining gaps were filled by linear interpolation.

References

Falge E, Baldocchi D, Olson R *et al*. (2001) Gap filling strategies for defensible annual sums of net ecosystem exchange. *Agricultural and Forest Meteorology*, **107**, 43-69.

Takagi K, Nomura M, Ashiya D *et al*. (2005a) Dynamic carbon dioxide exchange through snowpack by wind-driven mass transfer in a conifer-broadleaf mixed forest in northernmost Japan. *Global Biogeochemical Cycles*, **19**, GB2012, doi:10.1029/2004GB002272.

3. Note for data users

The figure of "-99999" denote missing or rejected data.

4. List of reference and products including this gap-filled data set

	Symbol	Unit	Level of data processing
Year	Year	-	
Date	DOY	-	

Time	TIME	-	
Sensible Heat Flux	H	$W \cdot m^{-2}$	
Latent Heat Flux	LE	$W \cdot m^{-2}$	
Net ecosystem CO_2 exchange	NEE1	$micoromol \cdot m^{-2} \cdot s^{-1}$	
Net ecosystem CO_2 exchange	NEE2	$micoromol \cdot m^{-2} \cdot s^{-1}$	With friction velocity correction
Friction velocity	USt	$m \cdot s^{-1}$	