

1. About the data set

Site name (three letter code)	Teshio CC-LaG experiment site (TSE)	
Period of registered data	From January 1 2004 to December 31 2004	
This document file name	GfNr_TSE_2004_30m_01-2.pdf	
Corresponding data file name	GfNr_TSE_2004_30m_01-2.csv	
Revision information		
Date	Details of revision	Renewed file name
17 June 2018	First registration	GfNr_TSE_2004_30m_01.pdf GfNr_TSE_2004_30m_01.csv Siln_TSE_2008_04.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_2004_30m_01-2.pdf GfNr_TSE_2004_30m_01-2.csv Siln_TSE_2008_05.pdf
Contact person#1	Kentaro Takagi (kentt@fsc.hokudai.ac.jp)	
Contact person#2	Yoshiyuki Takahashi (yoshiyu@nies.go.jp)	
Contact person#3		
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 2 m was used as the lookup class. During the snow-covered period, NEE values were compiled for each soil temperature at 5cm depth (2 °C interval) × wind speed at 32 m height (1 m s⁻¹ interval) class. 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	$micromol \cdot m^{-2} \cdot s^{-1}$	
Net ecosystem CO ₂ exchange	NEE2	$micromol \cdot m^{-2} \cdot s^{-1}$	With friction velocity correction
Friction velocity	USt	$m \cdot s^{-1}$	