Name in dataset	unit	Type of variable	Description	Measurement method	Reference
GENERAL			**general information about the soil profile**		
PROFILE_ID	-	factor	profile ID	-	-
EOV_LONG	-	real number	EOV coordinates	-	-
EOV_LAT	-	real number	EOV coordinates	-	-
WGS_LONG	-	real number	WGS coordinates	-	-
WGS_LAT	-	real number	WGS coordinates	-	-
STYPE_MAIN_C	-	factor	code of main soiltype according to Hungarian soil classification	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
STYPE_C	-	factor	code of soiltype according to Hungarian soil classification	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
STYPE_SUB_C	-	factor	code of soil subtype according to Hungarian soil classification	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
STYPE_MAIN	-	factor	main type according to Hungarian soil classification	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
STYPE	-	factor	soiltype according to Hungarian soil classification	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
STYPE_SUB	-	factor	soil subtype according to Hungarian soil classification	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
ST__100	-	factor	code of soiltype according to Hungarian soil classification including all possible categories, and NA=99		Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
YEAR	-	real number	year of sampling	-	-
ORIGIN	-	factor	origin of data	-	-
PAR_MAT	-	factor	parent material	-	Gyalog L., Síkhegyi F. (szerk.) 2000: Magyarország földtani térképe, M=1:100 000. Magyar Állami Földtani Intézet kiadványa, Budapest
COUNTY_C	-	factor	code of county from where sample originates	-	-
COUNTY	-	factor	name of county from where sample originates	-	-
CITY	-	factor	name of city from where sample originates	-	-
MACRO_REG_C	-	factor	code of macro region from where sample originates	-	Dövényi. Z.et al. (2008). Cadastre of microregions of Hungary. (Magyarország kistájainak katasztere.) MTA FTKI, Budapest.
MACRO_REG	-	factor	name of macro region from where sample originates	-	Dövényi. Z.et al. (2008). Cadastre of microregions of Hungary. (Magyarország kistájainak katasztere.) MTA FTKI, Budapest.
MESO_REG_C	-	factor	code of meso region from where sample originates	-	Dövényi. Z.et al. (2008). Cadastre of microregions of Hungary. (Magyarország kistájainak katasztere.) MTA FTKI, Budapest.
MESO_REG	-	factor	name of meso region from where sample originates	-	Dövényi. Z.et al. (2008). Cadastre of microregions of Hungary. (Magyarország kistájainak katasztere.) MTA FTKI, Budapest.
MICRO_REG_C	-	factor	code of micro region from where sample originates	-	Dövényi. Z.et al. (2008). Cadastre of microregions of Hungary. (Magyarország kistájainak katasztere.) MTA FTKI, Budapest.
MICRO_REG	-	factor	name of micro region from where sample originates	-	-
COMMENTS	-	character	comments for general information	-	-
*_M	-	factor	measurement method code of each soil properties, description of measurement methods in MARTHA$METHOD table		
ENV_COV			**information on topography, meteorology, parent material, vegetation of the profile location**		
PROFILE_ID	-	factor	profile ID	-	-
X	-	real number	EOV coordinates, longitude	-	-
Y	-	real number	EOV coordinates, latitude	-	-
ELEVA025	m	real number	elevation (altitude above sea level), from 25 m resolution raster data	-	https://www.eea.europa.eu/data-and-maps/data/eu-dem#tab-gis-data
SLODE025	degree	real number	slope angle, from 25 m resolution raster data	-	-
ASPDE025	degree	real number	aspect, from 25 m resolution raster data	-	-
ASPCO025	-	factor	aspect, égtájanként osztályozva: É=1, ÉK=2, K=3, DK=4, D=5, DNy=6, N	-	-
PROCU025	-	real number	profile curvatures, from 25 m resolution raster data	-	-
TOTCU025	-	real number	combined curvatures, from 25 m resolution raster data	-	-
MUTPI025	m	real number	topographic position indices , from 25 m resolution raster data	-	-
TPI__025	m	real number	topographic position indices , from 25 m resolution raster data	-	Zimmermann, 2000; Jenness, 2006
TRI__025	m	real number	terrain ruggedness indices , from 25 m resolution raster data	-	Riley et al., 1999
ROU__025	m	real number	roughness , from 25 m resolution raster data	-	Evans et al., 2014
DIS__025	-	real number	dissection, from 25 m resolution raster data	-	Evans, 1972

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
SURAR025	-	real number	surface to area ratio, from 25 m resolution raster data	-	Berry, 2002
MRVBF025	-	real number	multi-resolution valley bottom flatness , from 25 m resolution raster d	-	Gallant and Dowling, 2003
MRRTF025	-	real number	multi-resolution ridge top flatness , from 25 m resolution raster data	-	Gallant et al., 2013
NEGOP025	radian	real number	negative openness , from 25 m resolution raster data	-	Yokoyama et al., 2002
POSOP025	radian	real number	positive openness, from 25 m resolution raster data	-	Yokoyama et al., 2002
CONFI025	-	real number	convergence indices , from 25 m resolution raster data	-	Kiss, 2004
LSMOO025	-	real number	LS factor (Van Remortel et al., 2004), from 25 m resolution raster data	-	Moore et al. 1991
VRM__025	m	real number	vector ruggedness measure (Hobson, 1972), from 25 m resolution rast	-	Hobson, 1972
VRM3_025	m	real number	vector ruggedness measure (Hobson, 1972), from 25 m resolution rast	-	Hobson, 1972
FLOAA025	-	real number	surface convexity (Iwahashi and Pike, 2007), from 25 m resolution rast	-	Iwahashi and Pike, 2007
FLOPL025	m^2	real number	flow accumulation area (Tarboton, 1997), from 25 m resolution raster	-	Tarboton, 1997
SURCO025	m	real number	flow length (Tarboton, 1997), from 25 m resolution raster data	-	Tarboton, 1997
TWI__025	-	real number	topographic wetness indices by single and multi-flow algorithms (Tarb	-	Tarboton, 1997
TWISA025	-	real number	topographic wetness indices by single and multi-flow algorithms (Tarb	-	Tarboton, 1997
VER__025	m	real number	vertical distance to existing water bodies, from 25 m resolution raster	-	-
VERDE025	m	real number	vertical distance to existing water bodies, from 25 m resolution raster	-	-
HOR__025	m	real number	horizontal distance to existing water bodies, from 25 m resolution rast	-	-
HORDE025	m	real number	horizontal distance to existing water bodies, from 25 m resolution rast	-	-
MEL02025	m	real number	smoothed version of elevation, from 25 m resolution raster data	-	-
MPR02025	-	real number	smoothed version of profile curvature, from 25 m resolution raster dat	-	-
MSL02025	degree	real number	smoothed version of slope, from 25 m resolution raster data	-	-
MTO02025	-	real number	smoothed version of total curvature, from 25 m resolution raster data	-	-
MEL10025	m	real number	smoothed version of elevation, from 25 m resolution raster data	-	-
MPR10025	-	real number	smoothed version of profile curvature, from 25 m resolution raster dat	-	-
MSL10025	degree	real number	smoothed version of slope, from 25 m resolution raster data	-	-
MTO10025	-	real number	smoothed version of total curvature, from 25 m resolution raster data	-	-
MEL20025	m	real number	smoothed version of elevation, from 25 m resolution raster data	-	-
MPR20025	-	real number	smoothed version of profile curvature, from 25 m resolution raster dat	-	-
MSL20025	degree	real number	smoothed version of slope, from 25 m resolution raster data	-	-
MTO20025	-	real number	smoothed version of total curvature, from 25 m resolution raster data	-	-
MEL40025	m	real number	smoothed version of elevation, from 25 m resolution raster data	-	-
MPR40025	-	real number	smoothed version of profile curvature, from 25 m resolution raster dat	-	-
MSL40025	degree	real number	smoothed version of slope, from 25 m resolution raster data	-	-
MTO40025	-	real number	smoothed version of total curvature, from 25 m resolution raster data	-	-
SEL02025	m	real number	standard deviations of elevation, from 25 m resolution raster data	-	-
SPR02025	-	real number	standard deviations of profile curvature, from 25 m resolution raster d	-	-
SSL02025	degree	real number	standard deviations of slope, from 25 m resolution raster data	-	-
STO02025	-	real number	standard deviations of total curvature, from 25 m resolution raster dat	-	-
SEL10025	m	real number	standard deviations of elevation, from 25 m resolution raster data	-	-
SPR10025	-	real number	standard deviations of profile curvature, from 25 m resolution raster d	-	-
SSL10025	degree	real number	standard deviations of slope, from 25 m resolution raster data	-	-
STO10025	-	real number	standard deviations of total curvature, from 25 m resolution raster dat	-	-
SEL20025	m	real number	standard deviations of elevation, from 25 m resolution raster data	-	-
SPR20025	-	real number	standard deviations of profile curvature, from 25 m resolution raster d	-	-
SSL20025	degree	real number	standard deviations of slope, from 25 m resolution raster data	-	-
STO20025	-	real number	standard deviations of total curvature, from 25 m resolution raster dat	-	-
SEL40025	m	real number	standard deviations of elevation, from 25 m resolution raster data	-	-
SPR40025	-	real number	standard deviations of profile curvature, from 25 m resolution raster d	-	-
SSL40025	degree	real number	standard deviations of slope, from 25 m resolution raster data	-	-

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
STO40025	-	real number	standard deviations of total curvature, from 25 m resolution raster dat	-	-
PARMAORI	-	factor	Hungarian geological map, from 1:100000 scale shape data	-	Gyalog L., Síkhegyi F. (szerk.) 2000: Magyarország földtani térképe, M=1:100 000. Magyar Állami Földtani Intézet kiadványa, Budapest
TMI01100	°C	real number	mean monthly minimum temperature, January, from 100 m resolutior	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI02100	°C	real number	mean monthly minimum temperature, February, from 100 m resolutic	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI03100	°C	real number	mean monthly minimum temperature, March, from 100 m resolution	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI04100	°C	real number	mean monthly minimum temperature, April, from 100 m resolution ra	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI05100	°C	real number	mean monthly minimum temperature, May, from 100 m resolution ra:	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI06100	°C	real number	mean monthly minimum temperature, June, from 100 m resolution ra	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI07100	°C	real number	mean monthly minimum temperature, July, from 100 m resolution ras	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI08100	°C	real number	mean monthly minimum temperature, August, from 100 m resolution	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI09100	°C	real number	mean monthly minimum temperature, September, from 100 m resolu	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI10100	°C	real number	mean monthly minimum temperature, October, from 100 m resolutio	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI11100	°C	real number	mean monthly minimum temperature, November, from 100 m resolut	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMI12100	°C	real number	mean monthly minimum temperature, December, from 100 m resolut	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA01100	°C	real number	mean monthly maximum temperature, January, from 100 m resolutio	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA02100	°C	real number	mean monthly maximum temperature, February, from 100 m resoluti	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA03100	°C	real number	mean monthly maximum temperature, March, from 100 m resolution	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
TMA04100	°C	real number	mean monthly maximum temperature, April, from 100 m resolution ra	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA05100	°C	real number	mean monthly maximum temperature, May, from 100 m resolution ra	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA06100	°C	real number	mean monthly maximum temperature, June, from 100 m resolution ra	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA07100	°C	real number	mean monthly maximum temperature, July, from 100 m resolution ras	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA08100	°C	real number	mean monthly maximum temperature, August, from 100 m resolution	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA09100	°C	real number	mean monthly maximum temperature, September, from 100 m resolu	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA10100	°C	real number	mean monthly maximum temperature, October, from 100 m resolutio	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA11100	°C	real number	mean monthly maximum temperature, November, from 100 m resolu	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TMA12100	°C	real number	mean monthly maximum temperature, December, from 100 m resolut	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME01100	°C	real number	mean monthly mean temperature, January, from 100 m resolution ras	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME02100	°C	real number	mean monthly mean temperature, February, from 100 m resolution ra	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME03100	°C	real number	mean monthly mean temperature, March, from 100 m resolution rast	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME04100	°C	real number	mean monthly mean temperature, April, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME05100	°C	real number	mean monthly mean temperature, May, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME06100	°C	real number	mean monthly mean temperature, June, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME07100	°C	real number	mean monthly mean temperature, July, from 100 m resolution raster (	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
TME08100	°C	real number	mean monthly mean temperature, August, from 100 m resolution rast	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME09100	°C	real number	mean monthly mean temperature, September, from 100 m resolution	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME10100	°C	real number	mean monthly mean temperature, October, from 100 m resolution ra:	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME11100	°C	real number	mean monthly mean temperature, November, from 100 m resolution	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
TME12100	°C	real number	mean monthly mean temperature, December, from 100 m resolution	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE01100	mm	real number	mean monthly precipitation, January, from 100 m resolution raster da	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE02100	mm	real number	mean monthly precipitation, February, from 100 m resolution raster d	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE03100	mm	real number	mean monthly precipitation, March, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE04100	mm	real number	mean monthly precipitation, April, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE05100	mm	real number	mean monthly precipitation, May, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE06100	mm	real number	mean monthly precipitation, June, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE07100	mm	real number	mean monthly precipitation, July, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE08100	mm	real number	mean monthly precipitation, August, from 100 m resolution raster dat	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE09100	mm	real number	mean monthly precipitation, September, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE10100	mm	real number	mean monthly precipitation, October, from 100 m resolution raster da	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
PRE11100	mm	real number	mean monthly precipitation, November, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
PRE12100	mm	real number	mean monthly precipitation, December, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD01100	MJ/m^2	real number	mean monthly radiation, January, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD02100	MJ/m^2	real number	mean monthly radiation, February, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD03100	MJ/m^2	real number	mean monthly radiation, March, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD04100	MJ/m^2	real number	mean monthly radiation, April, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD05100	MJ/m^2	real number	mean monthly radiation, May, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD06100	MJ/m^2	real number	mean monthly radiation, June, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD07100	MJ/m^2	real number	mean monthly radiation, July, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD08100	MJ/m^2	real number	mean monthly radiation, August, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD09100	MJ/m^2	real number	mean monthly radiation, September, from 100 m resolution raster dat	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD10100	MJ/m^2	real number	mean monthly radiation, October, from 100 m resolution raster data	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD11100	MJ/m^2	real number	mean monthly radiation, November, from 100 m resolution raster dat	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
RAD12100	MJ/m^2	real number	mean monthly radiation, December, from 100 m resolution raster dat	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP01100	kPa	real number	mean monthly vapour pressure, January, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP02100	kPa	real number	mean monthly vapour pressure, February, from 100 m resolution raste	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP03100	kPa	real number	mean monthly vapour pressure, March, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
VAP04100	kPa	real number	mean monthly vapour pressure, April, from 100 m resolution raster da	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP05100	kPa	real number	mean monthly vapour pressure, May, from 100 m resolution raster da	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP06100	kPa	real number	mean monthly vapour pressure, June, from 100 m resolution raster da	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP07100	kPa	real number	mean monthly vapour pressure, July, from 100 m resolution raster dat	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP08100	kPa	real number	mean monthly vapour pressure, August, from 100 m resolution raster	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP09100	kPa	real number	mean monthly vapour pressure, September, from 100 m resolution ra:	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP10100	kPa	real number	mean monthly vapour pressure, October, from 100 m resolution raste	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP11100	kPa	real number	mean monthly vapour pressure, November, from 100 m resolution ras	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
VAP12100	kPa	real number	mean monthly vapour pressure, December, from 100 m resolution ras	-	http://worldclim.org/version2; Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. International Journal of Climatology, 37(12), 4302–4315.
T__YE100	°C	real number	annual mean temperature (1981-2010), OMSZ, from 100 m resolution	-	Szentimrey, T., Bihari, Z., 2007. Mathematical background of the spatial interpolation methods and the software MISH (Meteorological Interpolation based on Surface Homogenized Data Basis). In: Proceedings from the Conference on Spatial Interpolation in Climatology and Meteorology. Budapest, pp. 17–27.
PREYE100	mm	real number	annual mean precipitation (1981-2010), OMSZ, from 100 m resolution	-	Szentimrey, T., Bihari, Z., 2007. Mathematical background of the spatial interpolation methods and the software MISH (Meteorological Interpolation based on Surface Homogenized Data Basis). In: Proceedings from the Conference on Spatial Interpolation in Climatology and Meteorology. Budapest, pp. 17–27.
COTRD020	%	real number	tree cover density, from 20 m resolution raster data	-	http://land.copernicus.eu/pan-european
COFOT020	-	factor	forest type, from 20 m resolution raster data	-	http://land.copernicus.eu/pan-european
COSOS020	%	real number	soil sealing, from 20 m resolution raster data	-	http://land.copernicus.eu/pan-european
CLCGR250	-	factor	grass, from 250 m resolution raster data	-	http://land.copernicus.eu/pan-european/corine-land-cover/clc-2014
COWET020	-	factor	wetland, from 20 m resolution raster data	-	http://land.copernicus.eu/pan-european
CLCAG250	-	factor	agricultural area, from 250 m resolution raster data	-	http://land.copernicus.eu/pan-european/corine-land-cover/clc-2014
MRE03250	-	real number	MODIS 2012.03.16.RED, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MNI03250	-	real number	MODIS 2012.03.16.NIR, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MND03250	-	real number	MODIS 2012.03.16.NDVI, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MRE04250	-	real number	MODIS 2016.04.03.RED, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MNI04250	-	real number	MODIS 2016.04.03.NIR, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MND04250	-	real number	MODIS 2016.04.03.NDVI, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MRE05250	-	real number	MODIS 2015.05.19.RED, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
MNI05250	-	real number	MODIS 2015.05.19.NIR, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MND05250	-	real number	MODIS 2015.05.19.NDVI, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MRE07250	-	real number	MODIS 2016.07.11.RED, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MNI07250	-	real number	MODIS 2016.07.11.NIR, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MND07250	-	real number	MODIS 2016.07.11.NDVI, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MRE08250	-	real number	MODIS 2017.08.31.RED, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MNI08250	-	real number	MODIS 2017.08.31.NIR, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MND08250	-	real number	MODIS 2017.08.31.NDVI, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MRE09250	-	real number	MODIS 2013.09.07.RED, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MNI09250	-	real number	MODIS 2013.09.07.NIR, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MND09250	-	real number	MODIS 2013.09.07.NDVI, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MRE10250	-	real number	MODIS 2017.10.16.RED, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MNI10250	-	real number	MODIS 2017.10.16.NIR, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
MND10250	-	real number	MODIS 2017.10.16.NDVI, from 250 m resolution	-	https://modis.gsfc.nasa.gov/data/dataprod/mod09.php
BASIC			**basic information about the soil horizons/layers**		
PROFILE_ID	-	factor	profile ID	-	-
SAMPLE_ID	-	factor	layer ID	-	-
HOR_NAME_FAO	-	factor	horizon name according to FAO	-	FAO 2006. Guidelines for Soil Descriptions 4th ed. Food and Agricultural Organization of United Nation, Rome, Italy.
HOR_DEP_TOP	cm	real number	top depth of horizon	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
HOR_DEP_BOT	cm	real number	bottom depth of horizon	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
SAMPLE_DEP_TOP	cm	real number	top depth of sampling	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
SAMPLE_DEP_BOT	cm	real number	bottom depth of sampling	-	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
COMMENTS	-	character	comments for basic information	-	-
*_M	-	factor	measurement method code of each soil properties, description of measurement methods in MARTHA$METHOD table		
CHEMICAL			**information on soil chemical properties**		
PROFILE_ID	-	factor	profile ID	-	-
SAMPLE_ID	-	factor	layer ID	-	-
OM	weight %	real number	organic matter content	Wet combustion with Tyurin titrimetric method:oxidation with chromic acid using boiling, Cr_2O7^{-2} not used in oxidation is titrated with $Fe(NH_4)_2(SO_4)_2$	Tyurin, I. V., 1931. A new modification of the volumetric method of determining soil organic matter by means of chromic acid. Pochvovedenie (in Russian). 26. 36–47
CACO3	weight %	real number	calcium carbonate content	Scheibler calcimeter: sample + HCl, calculating the $CaCO_3$ from volume of released CO_2	Nelson, R. E., 1982. Carbonate and gypsum. In: Page, A. L., Miller, R.H., Keeny, D.R. (Eds.) Methods of soil analysis. Part 2., American Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. p181–197.
PH_H2O	-	real number	pH in water	potentiometric method, soil : water = 1 : 2.5	McLean, E. O., 1982. Soil pH and lime requirement. In: Methods of soil analysis. Part 2. (ed. by A. L. Page) American Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. p199–224.
PH_KCL	-	real number	pH in KCl	potentiometric method, soil : KCl (1 mol/L) = 1 : 2.5	McLean, E. O., 1982. Soil pH and lime requirement. In: Methods of soil analysis. Part 2. (ed. by A. L. Page) American Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. p199–224.
SALT	weight %	real number	soluble salt content	Calculated based on the EC of the saturated pasture and temperature.	MSZ 1978. Determination of total water-soluble salt content. (Vízben oldható összes sótartalom meghatározása). Hungarian Standard no. MSZ 08-0206-2:1978. Hungarian Standards Institution. Budapest (in Hungarian)

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
CEC	cmol$^{(+)}$ kg^{-1}	real number	cation exchange capacity	Mehlich method: sample + 0.1 mol/L $BaCl_2$ at pH 8.1; than replacement of the adsorbed cation with $CaCl_2$ at pH 7	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
BASE_CATIONS	cmol$^{(+)}$ kg^{-1}	real number	sum of base cations	Mehlich method: sample + 0.1 mol/L $BaCl_2$ at pH 8.1; than replacement of the adsorbed cation with $CaCl_2$ at pH 7	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
EX_NA	cmol$^{(+)}$ kg^{-1}	real number	exchangeable Na content	Mehlich method: sample + 0.1 mol/L $BaCl_2$ at pH 8.1; than replacement of the adsorbed cation with $CaCl_2$ at pH 7	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
EX_K	cmol$^{(+)}$ kg^{-1}	real number	exchangeable K content	Mehlich method: sample + 0.1 mol/L $BaCl_2$ at pH 8.1; than replacement of the adsorbed cation with $CaCl_2$ at pH 7	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
EX_CA	cmol$^{(+)}$ kg^{-1}	real number	exchangeable Ca content	Mehlich method: sample + 0.1 mol/L $BaCl_2$ at pH 8.1; than replacement of the adsorbed cation with $CaCl_2$ at pH 7	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
EX_MG	cmol$^{(+)}$ kg^{-1}	real number	exchangeable Mg content	Mehlich method: sample + 0.1 mol/L $BaCl_2$ at pH 8.1; than replacement of the adsorbed cation with $CaCl_2$ at pH 7	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
ACIDITY_HIDR	cmol$^{(+)}$ kg^{-1}	real number	Ca(CH3-COO)2 extractable acidity	40g sample + 100 cm^3 $Ca(CH_3COO)2.H_2O$ solution, titration with NaOH (0.1 mol/L)	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
ACIDITY_EX	cmol$^{(+)}$ kg^{-1}	real number	KCl extractable acidity	40g sample + 100 cm^3 KCl (1 mol/L) solution, titration with NaOH (0.1 mol/L)	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
COMMENTS	-	character	comments for chemical information	-	-
*_M	-	factor	measurement method code of each soil properties, description of measurement methods in MARTHA$METHOD table		
PHYSICAL			**information on soil physical properties**		
PROFILE_ID	-	factor	profile ID	-	-
SAMPLE_ID	-	factor	layer ID	-	-
CLAY	weight %	real number	clay content (0-0.002 mm)	conventional pipette method, dispersing agent: $Na_4P_2O_7$	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil AnalysisAmerican Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. Part 1, p383–412.

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
SILT_USDA	weight %	real number	silt content (0.002-0.05 mm)	conventional pipette method, dispersing agent: $Na_4P_2O_7$	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil AnalysisAmerican Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. Part 1, p383–412.
SAND_USDA	weight %	real number	sand content (0.05-2 mm)	conventional pipette method, dispersing agent: $Na_4P_2O_7$	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil AnalysisAmerican Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. Part 1, p383–412.
SILT_HUN	weight %	real number	silt content (0.002-0.02 mm)	conventional pipette method, dispersing agent: $Na_4P_2O_7$	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil AnalysisAmerican Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. Part 1, p383–412.
SAND_HUN	weight %	real number	sand content (0.02-2 mm)	conventional pipette method, dispersing agent: $Na_4P_2O_7$	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil AnalysisAmerican Society of Agronomy, Inc. Soil Science Society of America, Inc. Madison, Wisconsin. USA. Part 1, p383–412.
PLAST_KA	-	real number	plasticity according to Arany	moisture content at which soil begins to behave as a liquid material and begins to flow	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
HYGR_WATER	weight %	real number	hygroscopic water content	water adsorption at 32.2 % relative humidity ($CaCl_2.6H_2O$)	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
BD	$g\ cm^{-3}$	real number	bulk density	Oven dry at 105 °C	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
PART_DENS	$g\ cm^{-3}$	real number	particle density	pycnometer	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
POR	vol %	real number	porosity	calculated based on bulk density and particle density	-
STRUCTURE	-	factor	structure	morfological description of soil structure	Baranyai, F. 1989. Guide to Large Scale Soil Mapping. (in Hungarian) Agroinform, Budapest.
COARSE	weight %	real number	coarse fraction content (> 2 mm)	sieving	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
F_0_0002	weight %	real number	0-0.002 mm fraction content	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
F_0002_0005	weight %	real number	0.002-0.005 mm fraction content	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
F_0005_001	weight %	real number	0.005-0.01 mm fraction content	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
F_001_002	weight %	real number	0.01-0.02 mm fraction content	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
F_002_005	weight %	real number	0.02-0.05 mm fraction content	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
F_005_025	weight %	real number	0.05-0.25 mm fraction content	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
F_025_2	weight %	real number	0.25-2 mm fraction content	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
TEXT_USDA	-	factor	USDA texture class	-	Soil Survey Staff. 1975. Soil taxonomy: a basic system of soil classification for making and interpreting soil surveys. US Department of Agriculture, Soil Conservation Service. U.S. Government Printing Office, Washington, DC.
COMMENTS	-	character	comments for physical information	-	-
*_M	-	factor	measurement method code of each soil properties, description of measurement methods in MARTHA$METHOD table		
PSD			**information on particle size distribution (weight % - particle size pairs)**		
PROFILE_ID	-	factor	profile ID	-	-
SAMPLE_ID	-	factor	layer ID	-	-
P_SIZE	mm	real number	upper limit of particle size	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
P_PERCENT	weight %	real number	weight % of a given size particle fraction	conventional pipette method,	Gee, G. W. and Bauder, J. W. 1986. Particle-size analysis. In: Klute, A. (Eds.) Methods of Soil
P_SIZE_orig	-	factor	upper limit of particle size	-	-
COMMENTS	-	character	comments for particle size distribution	-	-

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
HYDROLOGICAL			**information on soil hydraulic properties**		
PROFILE_ID	-	factor	profile ID	-	-
SAMPLE_ID	-	factor	layer ID	-	-
PF_0	vol %	real number	Saturated water content, Water content at 0 cm matric potential	Sand-box with 100 mL, undisturbed samples (steel rings)	Várallyay, G. 1973. A new apparatus for the determination of soil moisture potential in the low suction range. (A talaj nedvességpotenciálja és új berendezés annak meghatározására az alacsony (atmoszféra alatti) tenziótartományban.) (in Hungarian) Agrokémia és Talajtan. 22. (1-2) 1-22.
PF_0_4	vol %	real number	Water content at -2.5 cm matric potential	Sand-box with 100 mL, undisturbed samples (steel rings)	Várallyay, G. 1973. A new apparatus for the determination of soil moisture potential in the low suction range. (A talaj nedvességpotenciálja és új berendezés annak meghatározására az alacsony (atmoszféra alatti) tenziótartományban.) (in Hungarian) Agrokémia és Talajtan. 22. (1-2) 1-22.
PF_1_0	vol %	real number	Water content at -10 cm matric potential	Sand-box with 100 mL, undisturbed samples (steel rings)	Várallyay, G. 1973. A new apparatus for the determination of soil moisture potential in the low suction range. (A talaj nedvességpotenciálja és új berendezés annak meghatározására az alacsony (atmoszféra alatti) tenziótartományban.) (in Hungarian) Agrokémia és Talajtan. 22. (1-2) 1-22.
PF_1_5	vol %	real number	Water content at -31.6 cm matric potential	Sand-box with 100 mL, undisturbed samples (steel rings)	Várallyay, G. 1973. A new apparatus for the determination of soil moisture potential in the low suction range. (A talaj nedvességpotenciálja és új berendezés annak meghatározására az alacsony (atmoszféra alatti) tenziótartományban.) (in Hungarian) Agrokémia és Talajtan. 22. (1-2) 1-22.
PF_2_0	vol %	real number	Water content at -100 cm matric potential	Sand-box with 100 mL, undisturbed samples (steel rings)	Várallyay, G. 1973. A new apparatus for the determination of soil moisture potential in the low suction range. (A talaj nedvességpotenciálja és új berendezés annak meghatározására az alacsony (atmoszféra alatti) tenziótartományban.) (in Hungarian) Agrokémia és Talajtan. 22. (1-2) 1-22.
PF_2_3	vol %	real number	Water content at -200 cm matric potential	Kaoline-box with 100 mL, undisturbed samples (steel rings)	Várallyay, G. 1973. A new apparatus for the determination of soil moisture potential in the low suction range. (A talaj nedvességpotenciálja és új berendezés annak meghatározására az alacsony (atmoszféra alatti) tenziótartományban.) (in Hungarian) Agrokémia és Talajtan. 22. (1-2) 1-22.
PF_2_5	vol %	real number	Water content at field capacity, Water content at -316 cm matric pote	Kaoline-box with 100 mL, undisturbed samples (steel rings)	Várallyay, G. 1973. A new apparatus for the determination of soil moisture potential in the low suction range. (A talaj nedvességpotenciálja és új berendezés annak meghatározására az alacsony (atmoszféra alatti) tenziótartományban.) (in Hungarian) Agrokémia és Talajtan. 22. (1-2) 1-22.
PF_3_4	vol %	real number	Water content at -2500 cm matric potential	pressure membrane apparatus with cellophane membranes, disturbed samples	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
PF_4_2	vol %	real number	Water content at wilting point, Water content at -15000 cm matric po	pressure membrane apparatus with cellophane membranes, disturbed samples	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
PF_6_2	vol %	real number	Water content at -150000 cm matric potential	water adsorption at 32.2 % relative humidity ($CaCl_2.6H_2O$)	Buzás, I. (ed.), 1993. Methods of Soil Analysis. Part 1-2. (in Hungarian) INDA. Budapest.
KS	cm day^{-1}	real number	Saturated hydraulic conductivity	falling head method	Klute, A. 1965. Laboratory measurement of hydraulic conductivity of saturated soils. In: Methods of soil analysis. I. Physical and mineralogical properties including statistics of measurement sampling. Am. Soc. Agr., Ser. Agronomy 9. Madison. 210-211.
COMMENTS	-	character	comments for hydrological information	-	-
*_M	-	factor	measurement method code of each soil properties, description of measurement methods in MARTHA$METHOD table		

Name in dataset	unit	Type of variable	Description	Measurement method	Reference
RET			**information on water retention (theta - head pairs)**		
PROFILE_ID	-	factor	profile ID	-	-
SAMPLE_ID	-	factor	layer ID	-	-
HEAD	cm water	real number	matric head	described in MARTHA$METHODS	-
THETA	vol %	real number	water content of the soil at a given matric potential value	described in MARTHA$METHODS	-
PF	-	factor	pF value	-	-
VG_PARAM			**van Genuchten model parameters (soil moisture retention curve)**		
PROFILE_ID	-	factor	profile ID	-	-
SAMPLE_ID	-	factor	layer ID	-	-
thr	cm^3 cm^{-3}	real number	residual water content	-	-
ths	cm^3 cm^{-3}	real number	saturated water content	-	-
alp	cm^{-1}	real number	fitting parameter	-	-
n	-	real number	fitting parameter	-	-
m	-	real number	fitting parameter	-	-
SSE	$(cm^3\ cm^{-3})^2$	real number	residual sum of squares	-	-
nret	-	real number	number of theta-h pairs	-	-
COMMENTS	-	character	comments for VG parameters	-	-
METHOD			**description of measurement methods**		
CODE_M	-	factor	method code	-	-
METHOD	-	factor	method description	-	-
METH_REF	-	factor	method reference	-	-
METH_PAR	-	factor	name of measured parameter	-	-