Baseline and Projected Future Carbon Storage and Greenhouse-Gas Fluxes in Ecosystems of Alaska

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Conversion Factors

Multiply	By	To obtain
	Length	
centimeter (cm)	0.3937	inch (in.)
millimeter (mm)	0.03937	inch (in.)
meter (m)	3.281	foot (ft)
kilometer (km)	0.6214	mile (mi)
	Area	
hectare (ha)	2.471	acre
square meter (m^2)	10.76	square foot (ft^2)
square centimeter (cm^2)	0.1550	square inch (ft^2)
square kilometer (km^2)	0.3861	square mile (mi^2)
	Volume	
cubic centimeter (cm^3)	0.06102	cubic inch (in^3)
cubic meter (m^3)	35.31	cubic foot (ft^3)
	Flow rate	
cubic meter per second (m^3/s)	35.31	cubic foot per second (ft^3/s)
cubic meter per day (m^3/d)	264.2	gallon per day (gal/d)
cubic meter per day per square kilometer [$(m^3/d)/km^2$]	684.28	gallon per day per square mile [$(gal/d)/mi^2$]
millimeter per year (mm/yr)	0.03937	inch per year (in/yr)
	Mass	
gram (g)	0.03527	ounce, avoirdupois (oz)
kilogram (kg)	2.205	pound avoirdupois (lb)
	Pressure	
atmosphere, standard (atm)	101.3	kilopascal (kPa)
	Hydraulic conductivity	
meter per day (m/d)	3.281	foot per day (ft/d)
	Transmissivity*	
meter squared per day (m^2/d)	10.76	foot squared per day (ft^2/d)
	Application rate	
kilograms per hectare per year [(kg/ha)/yr]	0.8921	pounds per acre per year [(lb/acre)/yr]

*Transmissivity: The standard unit for transmissivity is cubic meter per day per square meter times meter of aquifer thickness [$(m^3/d)/m^2$]m. In this report, the mathematically reduced form, meter squared per day (m^2/d), is used for convenience.

Datum and Supplemental Information

Vertical coordinate information is referenced to the North American Vertical Datum of 1988 (NAVD 88).

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

Altitude, as used in this report, refers to distance above the vertical datum.

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as

$$°F = (1.8 \times °C) + 32.$$

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius (µS/cm at 25 °C).

Concentrations of chemical constituents in water are given in either milligrams per liter (mg/L) or micrograms per liter (µg/L).

The resolution of pixels in spatial datasets follows the conventions used in the spatial data and modeling communities. The format is "*n*-meter resolution," where *n* is a numerical value for the length. The usage translates into a pixel with a length of *n* on all sides that covers an area of *n* meters × *n* meters.

How Megagrams, Gigagrams, Teragrams, and Petagram Relate to Metric Tons

1 megagram (Mg)	=	1 million grams (10^6 g)	=	1 metric ton (t)
1 gigagram (Gg)	=	1 billion grams (10^9 g)	=	1,000 metric tons
1 teragram (Tg)	=	1 trillion grams (10^{12} g)	=	1 million metric tons (Mt)
1 petagram (Pg)	=	1 quadrillion grams (10^{15} g)	=	1 billion metric tons (Gt)

Abbreviations, Acronyms, and Chemical Symbols

°C	degree Celsius
µatm	microatmosphere
AICC	Alaska Interagency Coordination Center
ALFRESCO	Alaska Frame-Based Ecosystem Code
ALT	active-layer thickness
BCR	Bird Conservation Region
CALM	Circumpolar Active Layer Monitoring
CAVM	Circumpolar Arctic Vegetation Map
CGCM3.1	version 3.1-T47 of the Canadian Centre for Climate Modelling and Analysis' Coupled Global Climate Model
CH_4	methane
cm	centimeter
CMIP3	Coupled Model Intercomparison Project phase 3
CO	carbon monoxide
CO_2	carbon dioxide
CO_2-eq	carbon dioxide equivalent
CO_2-eq/yr	carbon dioxide equivalent per year
CRU	Climatic Research Unit
DIC	dissolved inorganic carbon
DOC	dissolved organic carbon
DOS-TEM	Dynamic Organic Soil version of the Terrestrial Ecosystem Model
ECHAM5	version 5 of the Max Planck Institute's European Centre Hamburg Model
EDNA	Elevation Derivatives for National Applications database
EISA	Energy Independence and Security Act of 2007
EPA	U.S. Environmental Protection Agency
FIA	Forest Inventory and Analysis National Program
FVS	Forest Vegetation Simulator
gC/m^2	gram of carbon per square meter
$gC/m^2/yr$	gram of carbon per square meter per year
GCM	general circulation model
gCO_2-eq/m^2/yr	gram of carbon dioxide equivalent per square meter per year
GHG	greenhouse gas

Abbreviations, Acronyms, and Chemical Symbols—Continued

GIPL 1.3	Geophysical Institute Permafrost Laboratory version 1.3 transient model
GIS	geographic information system
GPP	gross primary productivity
GWP	global warming potential
HPU	hydropedologic unit
HR	heterotrophic respiration
HUC	hydrologic unit code
IPCC	Intergovernmental Panel on Climate Change
kgC/m^2	kilogram of carbon per square meter
km	kilometer
km^2	square kilometer
km^2/yr	square kilometer per year
km^3/yr	cubic kilometer per year
LAI	leaf area index
LANDFIRE	Landscape Fire and Resource Management Planning Tools Project
LCC	Landscape Conservation Cooperative
LOADEST	USGS Load Estimator program
LTER	Long Term Ecological Research
m	meter
m/d	meter per day
MDM-TEM	Methane Dynamics Module of the Terrestrial Ecosystem Model
mg/L	milligram per liter
MgC/yr	megagram of carbon per year
MLR	multiple linear regression
mm	millimeter
mm/yr	millimeter per year
MODIS	Moderate Resolution Imaging Spectroradiometer
NALCMS	North American Land Change Monitoring System
NASA	National Aeronautics and Space Administration
NCSCDv2	Northern Circumpolar Soil Carbon Database version 2
NECB	net ecosystem carbon balance
NEP	net ecosystem production

Abbreviations, Acronyms, and Chemical Symbols—Continued

NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NOAA	National Oceanic and Atmospheric Administration
NPP	net primary productivity
NSP	near-surface permafrost
NWI	National Wetlands Inventory
NWIS	National Water Information System
OLT	organic-layer thickness
PCTR	perhumid coastal temperate rainforest
PDO	Pacific Decadal Oscillation
PgC	petagram of carbon
POC	particulate organic carbon
ppm	part per million
PRISM	Parameter-elevation Relationships on Independent Slopes Model
s.d.	standard deviation
SMU	soil map unit
SNAP	Scenarios Network for Alaska and Arctic Planning
SOC	soil organic carbon
SRES	Special Report on Emissions Scenarios
STATSGO	state soil geographic database
TgC	teragram of carbon
TgC/yr	teragram of carbon per year
$TgCO_2$-eq/yr	teragram of carbon dioxide equivalent per year
TOC	total organic carbon
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey