NPP Multi-Biome: PIK Data for Northern Eurasia, 1940-1988 (Based on Bazilevich)

Get Data

Summary:

There is one comma-separated (.csv) data file and one text (.txt) file (bibliographic information) with this data set. This data set provides above-ground net primary production (ANPP) and total net primary producitivity (NPP) [expressed in grams of carbon per square meter per year (gC/m^2/year)], and the C fraction used to convert dry biomass weight to carbon content, for 127 unique study sites in northern Eurasia. The sites are classified by ecozone (i.e., tundra, forest-tundra, taiga, mixed forest, broadleaf forest, small-leaved secondary forests, forest bogs, meadows, steppe, semi-desert, and polar desert) and plant community (phytocoenosis). Each study location is georeferenced (latitude/longitude) with elevation and zonal/interzonal information. References to original author, year of publication, and table/record in Bazilevich (1993) are also included. The data set also provides a bibliography of 274 original-source references (in Russian) to accompany the 127 data records on NPP from Bazilevich (1993).

The data are a subset of data adapted from Bazilevich, N.I. 1993. Biological Productivity of Ecosystems of Northern Eurasia. Nauka Publishers, Moscow. 293 pp. (in Russian). The data set originated from field measurements of primary productivity collected between 1940 and 1988 for most of the terrestrial vegetation types in northern Eurasia.

The NPP data collection contains field measurements of biomass, estimated NPP, and climate data for terrestrial grassland, tropical forest, temperate forest, boreal forest, and tundra sites worldwide. Data were compiled from the published literature for intensively studied and well-documented individual field sites and from a number of previously compiled multi-site, multi-biome data sets of georeferenced NPP estimates. The principal compilation effort (Olson et al., 2001) was sponsored by the NASA Terrestrial Ecology Program. For more information, please visit the NPP web site at http://daac.ornl.gov/NPP/npp_home.html.

Data and Documentation Access:

Get Data: http://daac.ornl.gov/cgi-bin/dsviewer.pl?ds_id=575

Description and Links to Companion Files and Supplemental Information:

Olson, R.J., K.R. Johnson, D.L. Zheng, and J.M.O. Scurlock. 2001. Global and Regional Ecosystem Modeling: Databases of Model Drivers and Validation Measurements. ORNL Technical Memorandum TM-2001/196. Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA. ftp://daac.ornl.gov/data/npp/GPPDI/comp/NPP_TM196.pdf

Data Citation:

Cite this data set as follows:

Denissenko, E.A., V. Brovkin, and W. Cramer. 2013. NPP Multi-Biome: PIK Data for Northern Eurasia, 1940-1988 (Based on Bazilevich). Data set. Available on-line [http://daac.ornl.gov] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, USA. doi:10.3334/ORNLDAAC/575

Table of Contents:

1. Data Set Overview:

Project: Net Primary Production (NPP)

This data set provides ANPP and total NPP, the C fraction used to convert dry biomass weight to carbon content, and a bibliography of 274 original-source references (in Russian). The bibliography accompanys the data records on NPP for 127 unique study sites in northern Eurasia, from Bazilevich (1993).

The data are a subset of data adapted from Bazilevich, N.I. 1993. Biological Productivity of Ecosystems of Northern Eurasia. Nauka Publishers, Moscow. 293 pp. (in Russian). The data set originated from field measurements of primary productivity collected between 1940 and 1988 for most of the terrestrial vegetation types in northern Eurasia.

2. Data Description:

This data set contains contains two data files. One file, in comma-separated-values (csv) format, provides above-ground net primary production (ANPP) and total NPP [expressed in grams of carbon per square meter per year (gC/m^2/year)] and the C fraction used to convert dry biomass weight to carbon content for 127 unique study sites in northern Eurasia. The sites are classified by ecozone (i.e., tundra, forest-tundra, taiga, mixed forest, broadleaf forest, small-leaved secondary forests, forest bogs, meadows, steppe, semi-desert, and polar desert) and plant community (phytocoenosis). The second file, in text (txt) format, provides the bibliography of 274 original-source references of data on NPP from Bazilevich (1993).

Spatial Coverage

Site: Northern Eurasia

Site Boundaries: (All latitude and longitude given in decimal degrees)

Site (Region)	Westernmost Longitude	Easternmost Longitude	Northernmost Latitude	Southernmost Latitude
Northern Eurasia	23	173	76	39

Site Information

The data summarize productivity values for 127 unique study sites in northern Eurasia. The sites are classified by ecozone (i.e., tundra, forest-tundra, taiga, mixed forest, broadleaf forest, small-leaved secondary forests, forest bogs, meadows, steppe, semi-desert, and polar desert) and plant community (phytocoenosis). For each plant community, there is a general description and a list of dominant plant species. Most site locations (latitude/longitude) were not given in the original literature, so they were estimated approximately to one degree. Elevation ranges from 0 m to 3,000 m.

Spatial Resolution

Information not available.

Temporal Coverage

1940/01/01-1988/12/31

Temporal Resolution

The temporal representation is typical for the peak of the growing season.

Data File Information

Table 1. Files in this data set archive

FILE NAME	TEMPORAL COVERAGE	FILE CONTENTS
bazilevich_npp127.csv	1940/01/01 - 1988/12/31	Net primary productivity data for terrestrial ecosystems in Northern Eurasia
bazilevich_274refs.txt	1950/01/01-1988/12/31	Bibliography of 274 original-source references (in Russian) to accompany the 127 data records on NPP from Bazilevich (1993).

NPP Data. NPP estimates for the northern Eurasia sites are provided in one file (.csv format). The variable values are delimited by commas. The values -999 and -9999 used to denote missing values. All NPP units are in gC/m^2/year (carbon equivalent dry weight).

Table 2. Column headings in NPP file

COLUMN HEADING	DEFINITION	UNITS
phytocoenosis	General plant community description and a list of dominant plant species	text
NPP (gC/m2/year)	Total NPP expressed in grams of carbon per square meter per year	gC/m^2/year
Elevation	Elevation at or above sea level	meters
Latitude	Latitude of study site	decimal degrees
Longitude	Longitude of study site	
Supposed Author	Last name of original author of NPP data	text
Year	Year in which data were collected	numeric
Zone	Ecological zone in which study site was located	text
Zonal/Intrazonal	Indicates whether the vegetation is associated with a particular zone or is included in the zonal vegetation but does not form an independent zone	text
C fraction	The conversion factor used to convert dry biomass weight to carbon content for NPP values	numeric
ANPP (gC/m2/year)	Above-ground NPP expressed in grams of carbon per square meter per year	gC/m^2/year
Table in B93	Reference to data table in Bazilevich (1993) where data were extracted	numeric
Record in B93 table	Reference to record in data table in Bazilevich (1993) where data were extracted	numeric

Sample NPP Data Record

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Phytocoenosis, NPP (gC/m2/year), Elevation (m), Lat (N), Long (E), Supposed Author, Year, Zone,
Zonal/Intrazonal, C fraction, ANPP (gC/m2/yr), Table in B93, Record in B93 table

Low bush-grass-lichen tundra with Dryas punctata, Novosieversia glacialis, Cetraria sp., 99, 100, 72, 105,
Shamurin, 1970, tundra, zonal, 0.56, 41, 1, 3,
Low bush-grass-moss tundra with Salix polaris, Dryas punctata, Poa arctica, Aulacomium turgidum, Cetraria sp.,
157, 200, 70, 71, Vilchek, 1987, tundra, zonal, 0.50, 45, 1, 4
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Bibliography File. A bibliography of 274 original-source references (in Russian) to accompany the 127 data records on NPP from Bazilevich (1993) is provided in a single text file.

Sample Bibliography Record

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1. Abaturov Yu.D. Nekotorye osobennosti biologitchescogo krugovorota azota i zolnych elementov v sosnyakach
Yuzschnogo Urala//Lesnye potchvy Urala.Sverdlovsk,1966. P.69-77 (Tr.UFAN;Vyp.55)
2. Abduev M.P. Biologicheskaya produktivnost podgornych ravnin Azerbaidzschana //Pervitchnaya biologitcheskaya
produktivnost deltovych ecosystem Prikaspiyskoy nizmennosti Cavcasa.Makhatchkala: Dag.fil. AN SSSR, 1978. P. 46-
47.
3. Agaleutov E.A., Schuynschaliev A.T. Ob osobehhostyach zschitnyakovych lugov poymy r.Urala v svyazy s
dynamicoy fitomassy i chimitcheskich elementov //Ecologiya. 1975, [6]. P. 23-29.
...
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3. Data Application and Derivation:

Multi-biome biomass/production data for comparison with models and estimation of NPP.

4. Quality Assessment:

Most site locations (latitude/longitude) were not given in the original literature, so they were estimated approximately to one degree.

Sources of Error

Information not available.

5. Data Acquisition Materials and Methods:

NPP data, plant community type (phytocoenosis), ecozone, and other information for 127 unique study sites in Northern Eurasia are based on field measurements and were extracted from published literature (Bazilevich, 1993). Most site locations (latitude/longitude) were not given in the original literature, so they were estimated approximately to one degree. NPP values were converted to carbon content (>gC/m^2/year) using the fractions reported in the data file.

6. Data Access:

This data set is available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

Data Archive:

Web Site: http://daac.ornl.gov

Contact for Data Center Access Information:

E-mail: uso@daac.ornl.gov
Telephone: +1 (865) 241-3952

7. References:

Olson, R. J., K.R. Johnson, D.L. Zheng, and J.M.O. Scurlock. 2001. Global and Regional Ecosystem Modeling: Databases of Model Drivers and Validation Measurements. ORNL Technical Memorandum TM-2001/196. Oak Ridge National Laboratory, Oak Ridge, Tennessee, U.S.A.

Bazilevich, N.I. 1993. Biological Productivity of Ecosystems of Northern Eurasia. Nauka Publishers, Moscow. 293 pp. (in Russian).

Additional Sources of Information:

Bazilevich, N.I. 1994. Geographical patterns in the biological productivity of soil-and-vegetation associations of Northern Eurasia. Eurasian Soil Science C/C of POCHVOVEDENIE 27 (3): 1

Bazilevich, N.I. 1994. Global primary productivity: phytomass, net primary production, and mortmass. NOAA National Geographical Data Center, Global Ecosystems Database, Boulder CO, USA.

Bazilevich, N.I., A.A. Tishkov, and G.E. Vilchek. 1997. Live and dead reserves and primary production in polar desert, tundra and forest tundra of the Former Soviet Union. Ecosystems of the World 3: 509-540.