CEOP Reference Site Data Set Metadata Information

LBA Brasilia

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Abstract

This document includes the Metadata and information the user should be aware of when using any of the LBA reference site data from the CEOP Central Data Archive (CDA) submitted for the measurement period October 01, 2004 to March 31, 2005. It includes a description of the measurement site, the instrumentation, the data collection and quality control procedures and some remarks pointing at peculiarities of specific data.

1. Data Set Overview

1.1 Site and Time Period

This description refers to the data from the LBA Brasilia site for the period October 01, 2004 – 0000 UTC to March 31, 2005 – 2330 UTC.

1.2 Site Coordinates

1.2 All meteorological ~, radiation ~, soil ~, tower ~ and flux measurements have been performed at Brasilia Cerrado (savanna) site. The coordinates for Brasília sites are:

DMS:	15° 55‘ 48” S	47° 55‘ 11” W	
DD:	-15.93000 S	-47.92000 W	
UTM:	8236619.5	187360.53	23L

Site Altitude: 1100 meters

1.3 Site Operator

The LBA Brasilia site is part of the LBA Project, managed by the Brazilian Institute for Amazon Research (INPA) which is subordinated to Brazilian Ministry of Science and Technology (MCT).

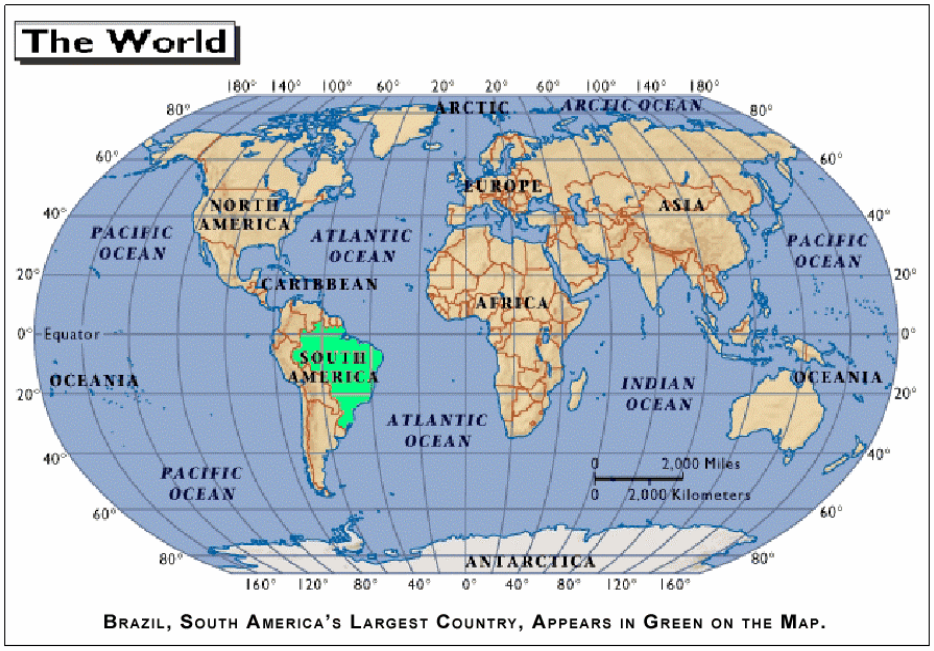
1.4 General Site Description

Landscape

Brasília, Federal District, is Brazil's capital, located in the Brazilian Central Plateau, locally known as the Cerrado region. The city is expanding very rapidly over the 5,814 km2 of the Federal District. Brasília was planned in the 1950s to be in the center of the country, strategically located in order to promote Brazil's inland development. Many of the governmental and urban facilities were built in the early sixties.

The Cerrado is the second largest biome of Brazil, after the Amazon rain forest, representing 22 % of the country, or approximately 2 million km2, quite as large as Western Europe. It is a species rich wet tropical savanna classified as a hotspot because of its large number of endemic species and the rapid loss of habitats. The soils are generally highly weathered and distrophic, being the growth of plants limited by N and P. The fragmentation of Cerrado areas and the rapid conversion into agroecosystems may lead to higher nutrient inputs in adjacent native areas. The enrichment of native areas with N and P will probably affect plant and soil microbial community and consequently change the magnitude of NOx emissions. The Cerrado has a continuous layer of herbaceous species (mainly C4 grasses) at the peak of the vegetation growth, scattered with shrubs and trees that sometimes form a continuous canopy. It has a characteristic flora, which distinguishes it from other Brazilian biomes, such as the Amazonian and coastal rain forests or the Northeastern Caatinga. The Cerrado savanna is criss-crossed with corridors of mesophytic evergreen forest that occur along the rivers (gallery forest). Other types of vegetation occur infrequently such as hyperseasonal savannas (veredas), and dry savannas (campo rupestre). Four physiognomic types of savanna are commonly recognized in the Cerrado: campo limpo (grassland), campo sujo (shrub savanna), cerrado sensu strictu (savanna) and cerradão (woodland), which differ from each other by the relative abundance of woody and herbaceous (mainlygrasses) species.

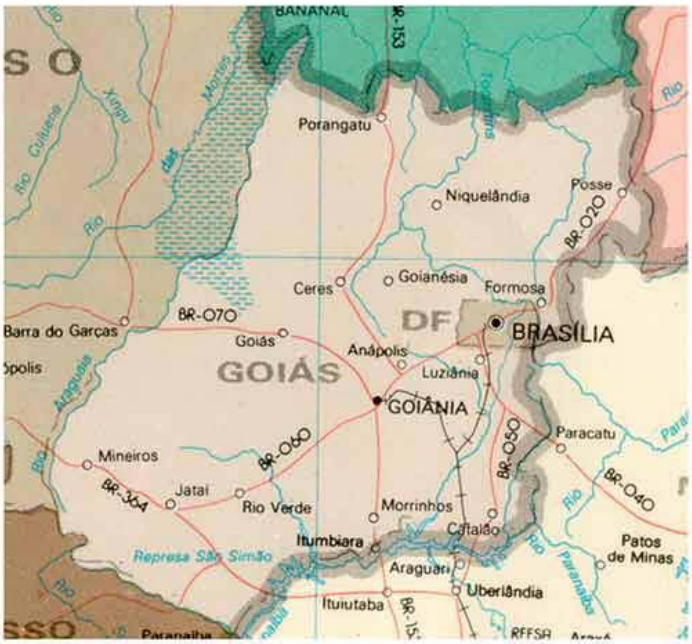
Figure 1 Map of *Brazil* in the World



Brazil, South America's Largest Country, Appears in Green on the Map.

Figure 2 Map of *Brazil* in South America

Figure 3 Map of *Brasília State-DF*



Base Map, copyright IBGE. (Direitos de reprodução reservados ao IBGE.)

Figure 3 *Brasília Tower Profile*

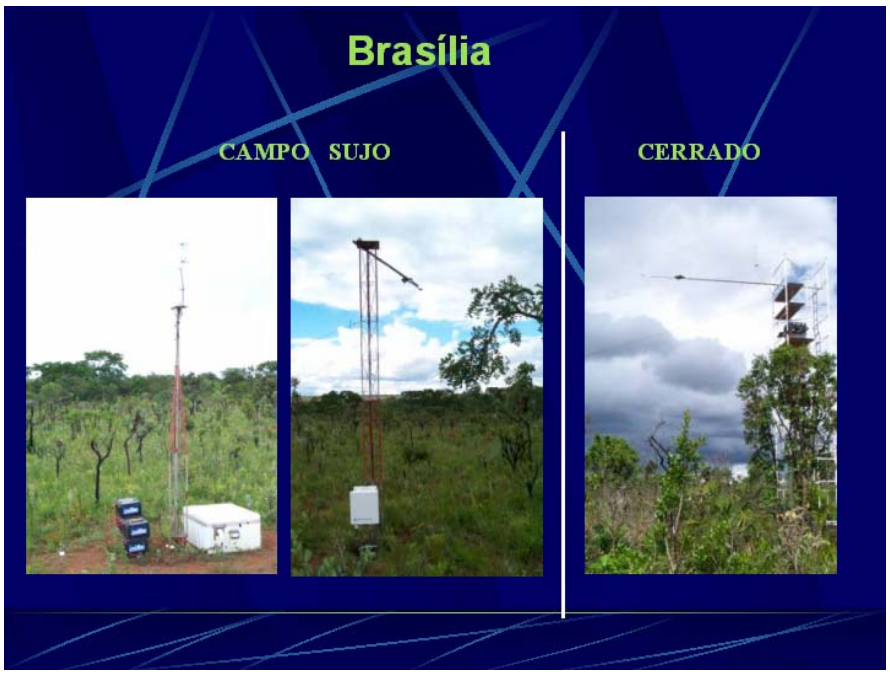


Figure 4 Photo of *Brasilia-Cerrado LBA-CEOP-Site*

Figure 5 Photo of *Brasilia-Campo Sujo LBA-CEOP-Site*

Soil

The Cerrado has a high diversity of soil types, geology, geomorphology, and climate. Most Cerrado soils are very deep and well drained, on gentle slopes (commonly less than 3 %), high in clay and iron oxides, and a mix of clay and secondary minerals. However, some soils are acidic; contain a low amount of organic matter; have a low concentration of calcium, magnesium, phosphorus and potassium; have a high concentration of iron and aluminum, and have a low cation exchange capacity. The high aluminum concentration in the soils is a matter of concern and argument. While high aluminum saturation in the cation exchange capacity of the soil can decrease crop productivity, some native trees are able to accumulate large amounts of aluminum in their leaves. The Cerrado is mostly composed of five topsoils: Latisols, or oxisols (cover 46% of the Cerrado); Cambisols and Litholic Neosols (occupy 10% of the Cerrado); Quartzarenic Neosols and Argisols (cover 15% each). The remaining 14% of the Cerrado is covered with various other soil types. The Federal District is located in the Brazilian Central plateau on the South American tectonic plate. Rocks are mostly from the Pre-Cambrian period, covered with laterite from the Cenozoic period.

Climate

The annual average rainfall is around 1,500 mm. Approximately 86 % of the Cerrado receives between 1,000 and 2,000 mm of precipitation annually, putting the region into an intermediary climatic position between the rainy Amazonian and the arid Caatinga. About 90% of total precipitation falls between October and March, resulting in two distinct climatic seasons (wet and dry).

During the rainy season grasses are active and produce a large amount of green biomass that dries out during the dry season. The accumulation of dead material facilitates the occurrence of fire, especially at the end of the dry season. Cerrado has the richest flora among tropical savannas and is one of the world's environmental 'hot-spots'.
Over 10,400 species of vascular plants are found, fifty of which are endemic. Fauna diversity is very high also with 180 species of reptiles, 113 of amphibians, 837 of birds and 195 of mammals.

1.5 Site References

http://lba.cptec.inpe.br/lba/eng/research/brasilia.htm

2. Instrumentation Description

3. Data Collection and Processing

3.1 Data Collection

4. Quality Control Procedures

5. Gap filling Procedures

6. Data Remarks

This section gives specific additional information on different parameters the user should be aware of when using the data.

Disclaimer

The data from the Brasilia LBA Site have undergone the QA/AC procedure described in section 4 before being transferred to the CEOP Central Data Archive (CDA). The data supplier, however, cannot guarantee the absence of any errors and can not take over any responsibility for the results coming out of the use of the data. Data users who should discover problems, inconsistencies or any questionable effects when using the Brasilia data are kindly invited to contact the Brasilia site and/or data managers.

7. Reference Requirements

Use of the Brasilia reference site data should be made according to the CEOP policy rules outlined in the CEOP Reference Site Data Release Guidelines. The Brasilia data is freely available and we encourage others to use it. Kindly keep inform the originators of the data of how you are using their data and of any publication plans. Please acknowledge the data source as a citation or in the acknowledgments if the data have not yet been published. If the data originators feel that they should be offered participation as authors, they will let you know and we assume that an agreement on such matters will be reached prior to publishing the data. If your work directly competes with analyses under-way by the data originators, we may ask that they have the opportunity to submit a manuscript before you submit one that uses unpublished data. In order to maintain our measurement program we periodically need to demonstrate progress to our sponsoring agencies. In addition to informing us of your plans, we kindly request that you help us by providing preprints and updates on publication status.

The data source should be referred to as: The Large Scale Biosphere-Atmosphere Experiment in Amazon (LBA).