



GEVANBIOL

Government of the Federal District
State Department of Health
Secretariat of Health Surveillance
Directorate of Environmental Health Surveillance
Management of Environmental Monitoring Biological factors not
Core Surveillance of Air Quality, Soil, of Contaminants
Chemical Accidents and Dangerous Products



Newsletter VIGIAR/DF

Special Edition

Year 02 Number Nº 18

07/09/2014

Objective: Report to the Federal District's population and visitors about the risks of air pollution and its relationship to human health during the World Cup 2014.

1 – AIR QUALITY CLOSE TO LOCAL AGGLOMERATION WORLD CUP 2014 (Source:IBRAM)

Date	Smoke			PTS		
	Rod	Scs	Tag	Rod	Scs	Tag*
June 11	19,43	4,66	*	131,86	**	*
June 16	17,52	**	*	119,94	**	*
June 24	38,3	15,88	*	162,55	141,9	*

* On 11/26/2013, equipment was involved in a traffic accident, without further sampling. Triggered the insurer liable.

** No sampling

*** Material for laboratory analysis

The monitoring points featured in this issue are located in the vicinity of Mane Garrincha Stadium, Bus Station Plano Piloto, Hotel Sector and FIFA Fanf Fest. Overall, air quality, as assessed by parameters Brasilia-IBRAM Environmental Institute in June 2014, regarding the smoke is good, reaching levels of care for Total Suspended Particle - PTS and may lead to sensitive groups (children, the elderly and people with respiratory and cardiac) disease, symptoms such as dry cough and tiredness, although the population in general is not affected.



1.1 - FORECAST FOR THE PERIOD FROM 09 TO JULY 11 (Source: INPE)

	Carbon monoxide - CO	Particulate matter - MP	Ozone - O ₃	Nitrogen oxides - NO _x
July 09	Good	Good	Good	Moderate
July 10	Good	Good	Good	Moderate
July 11	Good	Good	Good	Moderate

Table 1: There is no variation of the emission of carbon monoxide during the study period. The highest predicted to particulate matter emission will give 03h, ozone at 18h and nitrogen oxides at 00h, as the mapping of the National Institute for Space Research - INPE.

2 - FOCI OF FIRES IN FEDERAL DISTRICT

2.1 - OUTBREAKS OF FIRE OBSERVED FROM 03 TO JULY 09 2014 (Source:INPE)

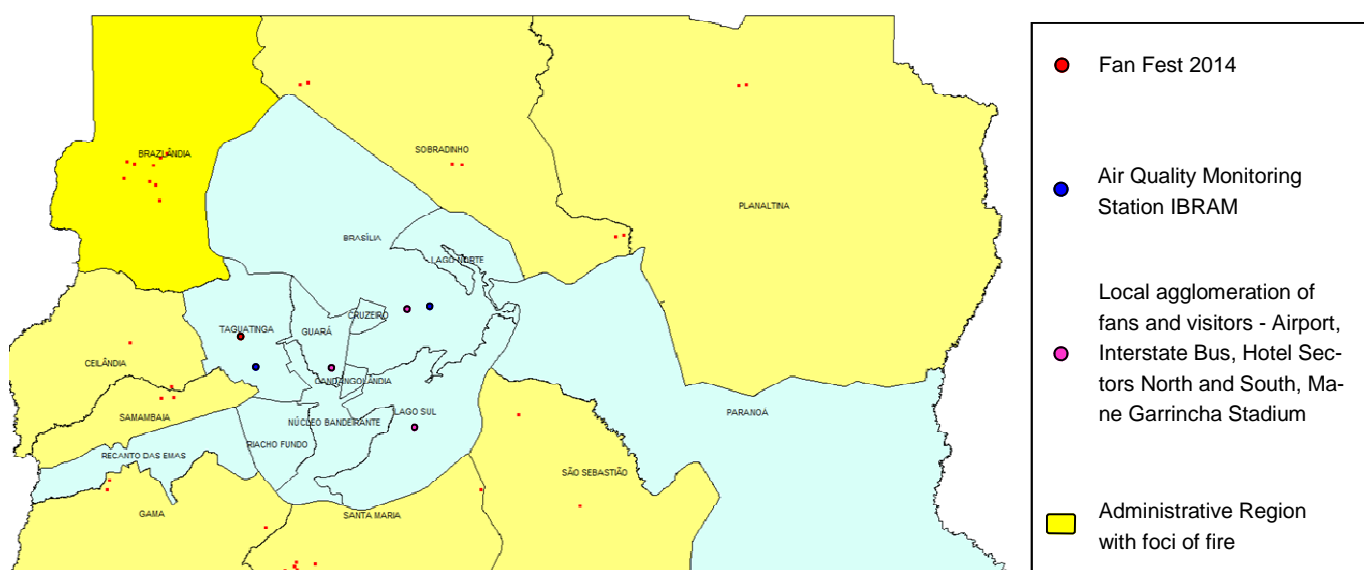


Figure 1. Foci of fires in the DF in the period from 03 to July 09 2014.



2.2 - RISK OF FIRES FOR THE PERIOD FROM 09 TO JULY 11 2014 (Source:INPE)

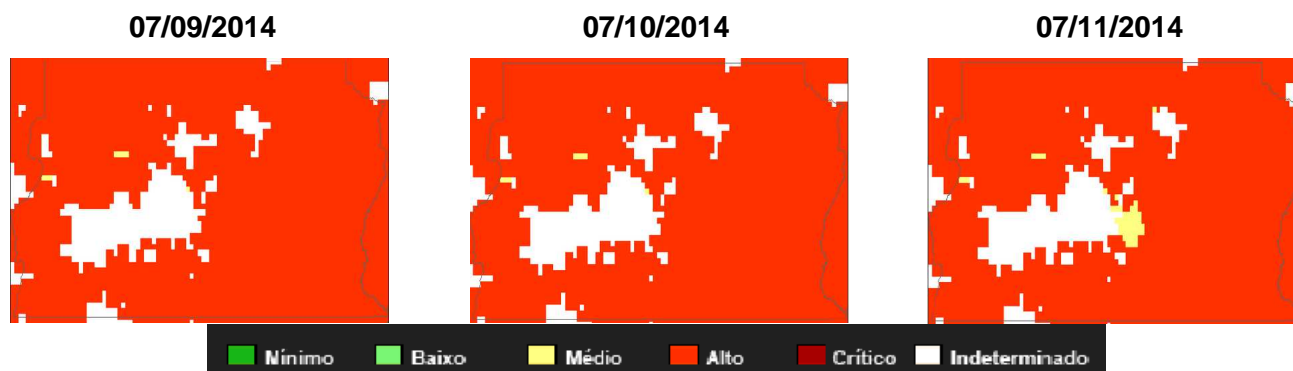


Figure 2. Risk of fire in the Federal District.

The risk of fire planned for a period from 09 to July 11, 2014 shows a high level in the Federal District, with some areas of indeterminacy or null. Thus, it is important to keep attention to the picture presented in order to trigger actions to prevent and control when necessary, in accordance with Decree No. 17,431, of June 11, 1996, establishing the Plan for Prevention and Control of Forest Fires in the Federal District and other measures.

3 - WEATHER


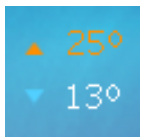

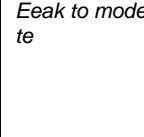

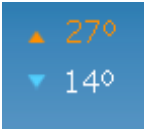

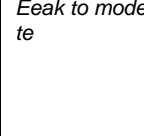

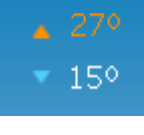

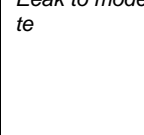

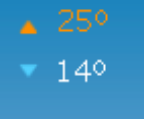

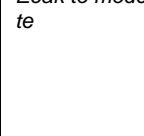


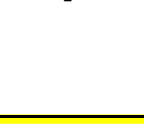
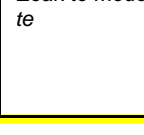
3.1 - METEOROLOGICAL OBSERVATIONS: 04.Jul.2014 a 08.Jul.2014 (Source: INMET)

The meteorological conditions for the period of 04.Jul.2014 a 08.Jul.2014, from conventional meteorological station of Brasilia (15.79 ° S, 47.93 ° W and altitude of 1159.54 meters relative to mean sea level) the National of Meteorology Institute -INMET.

Date	Temperature (°C)	Temperature (°C)	Temperature (°C)	Precipitation (mm)	Humidity (%)
	Mean	Maximum	Minimum		
04.Jul	21,9	26,2	16,7	0	39
05.Jul	20,5	24,7	14,2	0	41
06.Jul	20,2	24,8	11,3	0	47
07.Jul	20,4	24,8	15,1	0	52
08.Jul	20,6	24,6	16,9	0	55



3.2 - WEATHER FORECAST FOR THE PERIOD: 09.July.2014 to 13 July 2014

Data (Date)	Condições Conditions	Temperatures	Umidade Humidity	Vento Winds
09.Jul	 Party cloudy to cloudy	 25° 13°	 Umidade Máxima 85% Umidade Mínima 35%	 Eeak to modera- te Direction: SE-NE
10.Jul	 Party cloudy to Clear	 27° 14°	 Umidade Máxima 85% Umidade Mínima 35%	 Eeak to modera- te Directi- on:SE-NE
11.Jul	 Clear to party cloudy with haze	 27° 15°	 -	 Eeak to modera- te Directi- on:NE
12.Jul	 Clear to party cloudy with haze	 25° 14°	 -	 Eeak to modera- te Direction: NE
13.Jul	 Party cloudy with haze	 23° 13°	 -	 Eeak to modera- te Direction: SE-NE

4 - ULTRAVIOLET INDEX

4.1– UVI MAXIMUM EXPECTED FOR July 9 2014 (Source:INPE)

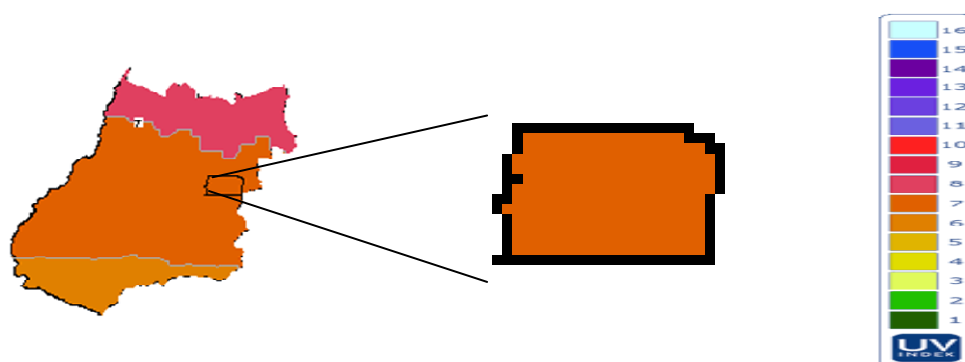


Figure 8 - Ultraviolet Index in the Federal District on 07.02.2014.



5 - CLIMATOLOGY WORLD CUP 2014

Brazil is divided in five distinctive administrative regions and, in each of these regions, there will be World Cup events (figure 1 illustrates the spatial localization of the host cities). The host-cities and their respective regions are:



North Region: Manaus (AM);

Southeast Region: Rio de Janeiro (RJ), São Paulo (SP) and Belo Horizonte (MG);

Northeast Region: Natal (RN); Fortaleza (CE); Recife (PE) and Salvador (BA);

Midwest Region: Brasília (DF) and Cuiabá (MT);

South Region: Curitiba (PR) and Porto Alegre (RS).

South Region

The South Region of Brazil is the climatically more regular region. Rainfall is well-distributed throughout the year and the four seasons are perceptively distinct. It is located between the tropical and extratropical regions, and has the Atlantic Ocean at its east. The heat of the summer contrasts with the frosts in winter, passing through more mild temperatures during the fall and spring. Recent studies indicate the influence of the El Niño and La Niña phenomena in weather and climate conditions in the region, especially over rainfall and temperature regimes. The precipitation regime presents transition in a way that, to the north, dominates the typical monsoon regime, with the rainy season beginning in spring and ending in early fall, resulting in a big difference in terms of precipitation between summer and winter; to the south, there is approximately uniform rainfall distribution throughout the year and the regime is more characteristic of medium latitudes, with rains relatively more intense in the winter. Topographic effects are also noticeable and the greater precipitations in the region are associated with the ascension over the topographic barrier. In what concerns temperature, the regions' geographic location ensures larger amplitude of the annual temperature cycle in Brazil, with greater contrast between the winter and summer.

The climate in the region is basically determined by the position and intensity of the South Atlantic Subtropical High, a semi-permanent pressure system, and by the associated anticyclonic circulation. In the summer, this high moves towards southeast, with little penetration on the continent, whilst in the winter the dislocation is towards the northeast, increasing the surface pressure over the continent with the entry of east winds till the center of Brazil. Of this region, two Host Cities were selected for World Cup events: Curitiba (PR) and Porto Alegre (RS).



Host City – CURITIBA (PR), Capital of the State Paraná (PR), located around geographical coordinates 25°25'S and 49°16'W, at altitude 945 m above mean sea level, on an area of 435 Km². Its location and altitude make it viable for the city to have the lowest average temperature between the other State Capitals of Brazil. Several factors contribute for the changeable nature of climate in the region, such as the plain terrain surrounded by mountains, which block winds allowing a morning mist to cover the city in cold mornings. Cold fronts coming from Antarctica and Argentina throughout the year bring tropical storms in the summer and cold winds in the winter.

The annual-mean temperature in Curitiba is 16.8°C, with monthly averages that vary between 12.9°C in July and 20.6°C in February. The highest maximum temperature averages occur in January and February, with 26.6°C and 26.7°C respectively. The minimum temperatures reach their lowest averages in June and July, with 8.1°C and 9.2°C respectively. The annual-mean of insolation is of 2006.2 hours; the highest monthly average is found in January (184.4 hours). The annual-mean of total pluviometric precipitation is of 1483.4 mm. There isn't a large contrast in rainfall distribution throughout the year, however, a greater concentration can be seen during the summer; the highest average occurs in January (171.8 mm), and the lowest in August (73.4 mm). Annually occur, on average, 116 days with rainfall equal or over 1 mm; the highest average occurs in January (15 days), the lowest average in July (6 days). The average humidity of the air is around 81%, varying between 79% and 82% throughout the year.

Climatology for the period of 1961-1990 - CURITIBA - PR						
Annual Mean Temperature	Annual Minimum Temperature	Annual Maximal Temperature	Annual Precipitation	Record of Most Intense Rain in 24h	Record of Minimum Temperature	Record of Maximal Temperature
16,8 °C	12,5 °C	23,1°C	1483,4 mm	104,6 mm 01-/1972	-5,4°C 09/1972	34,8 °C 02/1975

Extremes for the period of 1991-2013 - CURITIBA			
Months	Maximum Pluviometric Precipitation (mm)/year	Absolute Maximum Temperature (° C)/ year	Absolute Minimum Temperature (° C)/ year
June	128,2/2013	27,3/1992	-1,6/1994,2004
July	93,4/2003	28,2/2006	-3,5/2000

According to Köppen classification, the climate in Curitiba is Mild Maritime (Cfb), with temperatures averaging at 11°C in the coldest month, at times falling under 2°C in colder days. During the summer, the average temperature runs around 23°C, but can climb over 32°C in hotter days.

Host City – PORTO ALEGRE (RS), Capital of the State Rio Grande do Sul (RS), located around geographical coordinates 29°30'S and 51°10'W, at altitude around 10 m above mean sea level. With an area of about 500 Km², has a diverse geography, with hills, lowlands and a large lake, the Guaíba. Its location enables a well-defined contrast between the stations of the year, with high annual temperature range. The presence of the great water mass of lake Guaíba contributes



to increase the atmospheric humidity rates and modify the local climatic conditions; also important the process of land coverage by edifications and pavements, making feasible for the formation of microclimates.

The annual-mean temperature in Porto Alegre is 19.5°C, with monthly averages that vary between 14.3°C in June and 24.6°C in January and February. The highest maximum temperature averages occur in January and February, averaging slightly over 30°C. The minimum temperatures have their lowest averages in June and July, at around 10.7°C. From May to August can occur in RS a phenomenon called “veranico”, which is a gradual increase of temperature, the occurrence of clear skies or mist, and air stability in the form of calm or light winds. This phenomenon lasts for at least 4 (four) days with minimum temperatures over 12°C and maximum temperature over 25°C.

The annual-mean of insolation is of 2244.8 hours; the highest monthly average is found in December (245.2 hours). The annual-mean of total pluviometric precipitation is of 1320.2 mm. There isn't an important contrast in rainfall distribution throughout the year, however, precipitation can be measured in greater concentration between June and October; the lowest monthly average is found in April (77.3 mm), and the highest in September (142.2 mm).

During the fall and winter the occurrence of fog is frequent, averaging at around 8 to 9 days per month in June and July. Annually occur, on average, 101 days with rainfall equal or over 1 mm. The monthly-mean of air humidity varies between 69% in December (the lowest) and 82% in June (the highest); the annual average is of 76%.

Climatology for the period of 1961-1990 - PORTO ALEGRE - RS						
Annual Mean Temperature	Annual Minimum Temperature	Annual Maximal Temperature	Annual Precipitation	Record of Most Intense Rain in 24h	Record of Minimum Temperature	Record of Maximal Temperature
19,6°C	15,7 °C	25,1°C	1320,2 mm	135,4mm 06-/1974	-0,3 °C 06/1974	39,2 °C 12/1970

Extremes for the period of 1991-2013 - PORTO ALEGRE			
Months	Maximum Pluviometric Precipitation (mm)/year	Absolute Maximum Temperature (° C)/ year	Absolute Minimum Temperature (° C)/ year
June	95,1/1999	31,6/2006	0,4/1996
July	81,3/2002	32,2/2005	-0,2/1993

According to Köppen classification, the climate in Porto Alegre is Mild or Subtropical (Cfa), with well-distributed precipitation throughout the year. In the coldest month, the temperature averages below 18°C and, in the hottest month, is higher than 22°C.

Date of conclusion of the document: January 22nd 2014.

Information provided by the General-Coordination of Development and Research (CDP) of the National Meteorological Institute of Brazil (INMET)

Meteorologist Responsible: Andrea Malheiros Ramos (andrea.amos@inmet.gov.br)

Translation (Portuguese-English): Kelly Cristina Pereira de Moraes (kelly.morais@inmet.gov.br)



6 - RECOMMENDATIONS FOR HEALTH

Voyager, care of your health!

Air travel

When the airplane rises, reducing the air pressure in the cabin induces expansion of gases in the body. Similarly, when the plane goes down, increasing the air pressure in the cabin induces the contraction of the gases existing in the body. The gas expansion that occurs with the rise of the airplane promotes air outlet of the middle ear and paranasal sinuses, giving the sensation of "popping" ears. As the aircraft loses altitude, there is a re-entry of air in these cavities so as to equal the difference between internal and external pressure. Inherent to this discomfort equalize pressures can be relieved by swallowing, chewing or the act of yawning. In children, food or the use of a stimulant of swallowing can reduce these symptoms.

The humidity inside the aircraft cabin is low, generally less than 20%, may cause dry skin and discomfort in the eyes, mouth and nose, so applying a moisturizing lotion on the skin of a saline nasal spray to moisturize the mucous nasal, as well as the use of glasses instead of contact lenses, can alleviate this discomfort.

The immobility on long trips, with more than 4 hours duration, can cause risks to deep-vein thrombosis DVT, so whenever possible it should will walk along the cabin, for example, with a trip to the toilet every 2 to 3 hours.

In cases of diving, it is recommended not to perform an air travel until at least 12 hours after the last dive and this period should be extended to 24 hours, where the dips were multiple or diving was required decompression stops during rise to the surface, due to the risk of developing decompression sickness by decreasing the pressure in the cabin.

Jet lag is the designation on the symptoms caused by the change of "internal biological clock" of the organism and of circadian rhythms controlled by it, caused by passage through many time zones in a short period of tempo. Para minimize symptoms usual discomfort and in this situation, recommended: rest well before departure and as much as possible during the flight; eat light meals and limit consumption of alcohol; regular exercise during the day helps to promote sleep; the destination, ensuring the highest number of hours of sleep, as usual, for every 24 hours. A minimum of 4 hours of sleep during the first last night at destination (known as "anchor sleep"); night and day cycle is one of the most important factors in regulating the internal biological clock, and exposure to daylight at the destination adjustment aid, but it is not always appropriate to adjust the body to the local time at short trips (up to 2 3 days).



The air quality in the aircraft cabin is carefully controlled. Ventilation rates provide complete exchange of air 20-30 times per hour. Modern aircraft have to re-circulation to allow the cabin air recycling systems 50%. The recycled air usually passes through HEPA filters (high-efficiency particulate air), the same kind used in the operating room and intensive care unit of the hospital, which capture particulate matter, bacteria, fungi and virus systems.

Contraindications to travel

✖ newborns under 48 hours old.

✖ pregnant women from 36 weeks (32 weeks in the case of multiple pregnancy).

✖ individuals:

- Angina pectoris (chest pain) at rest;
- Any active contagious disease;
- Decompression sickness after diving;
- Increased intracranial pressure, hemorrhage, trauma or infection;
- Sinusitis, otitis or infectious rhinitis, particularly when the Jammed Eustachian tube;
- Acute myocardial infarction or recent stroke (the period time depends on the severity and duration of the trip);
- Recent surgery or trauma with possible presence of air or gas, especially abdominal trauma and gastrointestinal surgery, cranio-facial and eye injuries, brain neurosurgery or ophthalmic surgery involving penetration of the eyeball;
- Severe chronic respiratory disease, dyspnea at rest or pneumothorax not solved;
- Sickle cell disease (sickle cell anemia);
- Except when completely controlled psychotic illness.

Source: WHO-International Health and Travel. Accessed on 08/07/2014. Available at: http://whqlibdoc.who.int/publications/2009/9789241580403_por.pdf



Electronic address Newsletter VIGIAR/ DF:

<http://www.saude.df.gov.br/outros-links/informes-epidemiologicos/768-2013-12-09-17-11-36.html>

Questions and / or suggestions

Contact the Team Surveillance Populations Exposed to Air Pollutants - VIGIAR-DF/DIVAL/DF.

Tel: 3343-8810 / 8819

E-mails: gevanbiol@gmail.com e nuvasp@gmail.com

Technician responsible for the newsletter:

Camila Cibeli Soares de Oliveira – Núcleo de Vigilância da Qualidade do Ar, do Solo,
dos Contaminantes Químicos e Acidentes com Produtos Perigosos
Glaucé Araújo Ideião Lins – Gerência de Vigilância Ambiental de Fatores Não Biológicos
Kenia Cristina de Oliveira – Diretoria de Vigilância Ambiental em Saúde

Drafting team:

Glaucé Araújo Ideião Lins: Enfermeira e Especialista em Poluição do Ar e Saúde Humana - FMUSP

Sérgio Henrique Santos – Médico – Programa de Atendimento ao Paciente Asmático - PAPA-DF

Camila Cibeli Soares de Oliveira - Bióloga - DIVAL

João Suender Moreira – Biólogo - DIVAL

Maria Cristina da Silva Cerqueira - Agente de Vigilância Ambiental - DIVAL

Andrea Malheiros Ramos – Instituto Nacional de Meteorologia - INMET

Lourdes Martins de Moraes – Instituto Brasília Ambiental - IBRAM

Carlos Henrique Almeida Rocha – Instituto Brasília Ambiental - IBRAM

Elaine Terezinha Costa – Vigilância Ambiental em Saúde do RS/ Secretaria do Estado da Saúde do Rio Grande do Sul

Salete Heldt - Vigilância Ambiental em Saúde do RS/ Secretaria do Estado da Saúde do Rio Grande do Sul

Liane Farinon - Vigilância Ambiental em Saúde do RS/ Secretaria do Estado da Saúde do Rio Grande do Sul

WARNING: The Newsletter VIGIAR / DF is a free distribution and dissemination, however the VIGIAR / DF is not responsible for misuse of this information.

