

B24 5 YEARS OF BRAZILIAN GREENHOUSE GASES BACKGROUND CONCENTRATIONS

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In 2010 studies were initiated at two sites on the Brazilian coast Salinópolis/PA (SAL: 00°36'15.03"S; 47°22'25.02"W), and Natal/RN (NAT: 05°29'22.05"S; 35°15'39.64"W). Air samples were collected in the surface weekly and analyzed at the Atmospheric Chemistry Laboratory of IPEN, quantifying the gases: carbon dioxide, methane, nitrous oxide, sulfur hexafluoride and carbon monoxide. Results showed that SAL presents higher seasonality when compared to NAT. Simulations of backward trajectories, allowed to observe how each study site is influenced by air masses arriving in them. Then, in SAL air masses were from Atlantic ocean North (NAO) and South (SAO), depending on time of year, and in NAT only from the SAO. These behaviors were related to the position of the Intertropical Convergence Zone, suffering changes throughout the year. In SAL was observed that the main greenhouse gas (GHG), CO₂, suffered absorption processes by the ocean, a phenomenon also observed in flights using aircraft profiles. The second most important, CH₄, presented seasonally throughout the year and was similar behavior to the concentrations of the Barbados global station (RPB: 13°16'50.00"N, 59°43'20.00"W). And the third most important, N₂ O, presented dispersions which may be related to marine productivity. And the burning tracer, CO, showed periods of high concentrations from August to October and this was related to biomass burning in Brazil and in Africa, due to transport by air masses. In NAT, it was observed that the GHG concentrations, were similar behavior to the Ascension global station (ASC: 07°96'67.00"S; 14°0'00.00"W), since SAO concentrations are lower than the NAO. The concentrations of measured gases showed seasonality and periods of high concentrations, which were also associated with biomass burning on another continent. Overall, both study sites, SAL and NAT showed an increase in their concentrations over the years in the Brazilian coast following the world growth.

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