Editor's Comments on Authors' Response to RC1: Referee #3

Title:
Authors may like to consider following title for the manuscript:

"Impact of North Brazil Current rings on air-sea CO2 flux variability in western tropical Atlantic: Evidence for larger CO2 uptake during wintertime"

Abstract:
Suggested changes:

The key processes driving the air-sea CO2 fluxes in the western tropical Atlantic (WTA) in winter are poorly known. ~~It~~ WTA is a highly dynamic oceanic region, ~~with~~ expected to have ~~large~~ dominant role ~~of ocean physics~~ on the variability of CO2 air-sea fluxes. In early 2020 (February), this region was the site of a large in situ survey ~~which was put into~~ and studied in ~~a~~ wider context through satellite measurements. In ~~this season~~ the winter (February), the North Brazil Current (NBC) flows northward along the coast of south America, retroflects close to 8°N and pinches off the world's largest eddies, the NBC rings. The rings are formed to the north of the Amazon River mouth~~, which~~ when freshwater ~~export~~ discharge is still significant in winter~~, despite being~~ (a time period of relatively low runoff). We show that in February 2020, the region [50°W-59°W – 5°N-16°N] is a CO2 sink from the atmosphere to the ocean (-1.7 TgC.month-1), a factor of 10 greater than previously estimated. The spatial distribution of CO2 fugacity is strongly influenced by ~~eddy stirring~~ eddies south of 12°N. During the campaign,~~ a~~ nutrient rich freshwater plume from the Amazon River is entrained by a ring from the shelf up to 12°N leading to high phytoplankton concentration and ~~to a~~ significant carbon drawdown (~20 % of the total sink). ~~Trapping~~ In trapping equatorial waters, ~~the~~ NBC rings ~~themselves~~ are a small source of CO2. The less variable North Atlantic subtropical water extends from 12°N northward~~. They~~ and represents ~60 % of the total sink due to their lower temperature associated with winter cooling and strong winds. Our results, in identifying the key processes influencing the air-sea CO2 flux in the WTA, highlight the role of eddy interactions with the Amazon River plume. It sheds light on how ~~the previous~~ lack of data impeded a correct assessment of the flux in the past, and on the necessity of taking into account features at meso and small scale.