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INTRODUCTION

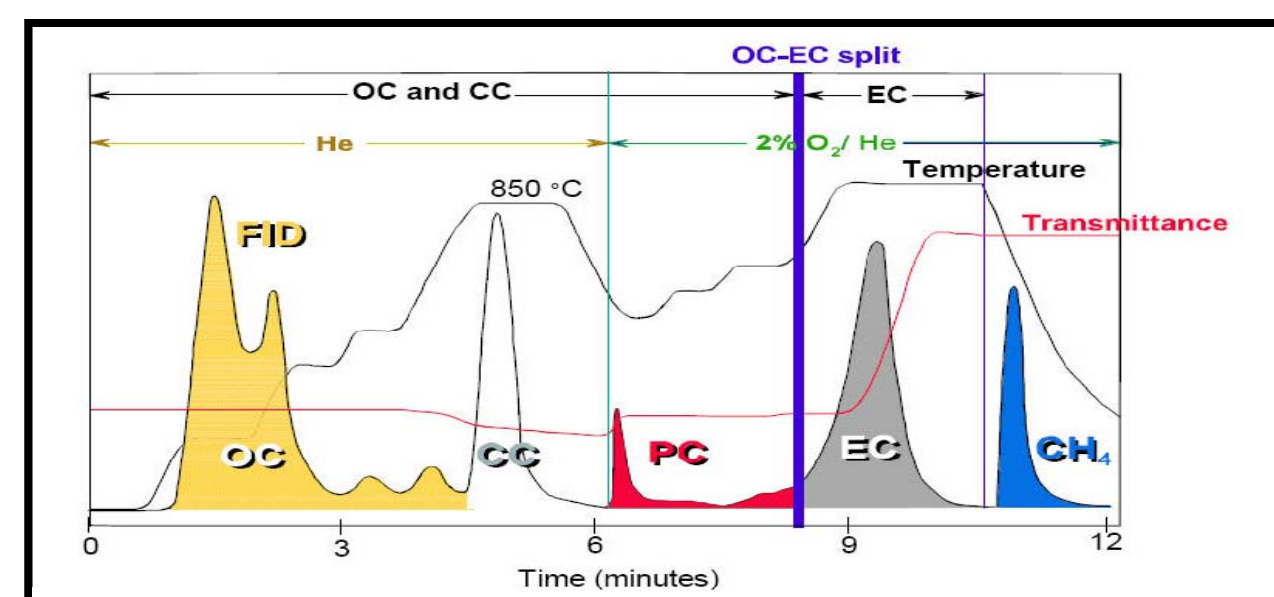
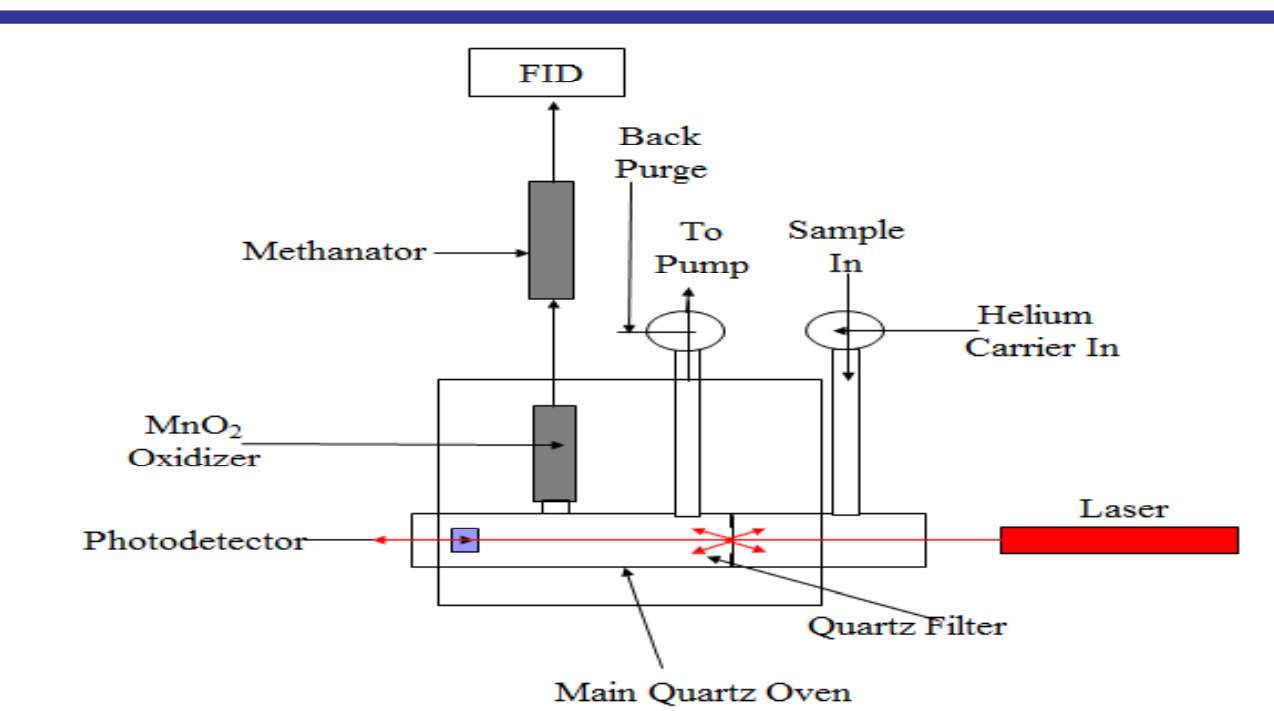
Fine particulate matter samples have been collected at seven different sites in NY on a 1-in-3 day schedule for the Environmental Protection Agency (EPA) Chemical Speciation Network (CSN) protocol.

Using the NIOSH protocol of the EPA CSN / TOT (Thermal Optical Transmittance) method, six carbon fractions can be defined including OC1-OC4, OP and EC. This study investigated these carbon fractions in NY from 2006 to 2007 in order to see the seasonal variations related to carbon fractions.

Time series color contour plots of these carbon fractions are produced for every sample over the two year period; and then for monthly averages. There is a clear seasonal dependence at all sites. The rural and region sites show very little contribution from the OC1 fraction, whereas there is significant contribution at this fraction for the urban sites. All the sites show strong contributions in the OC2-OC4 fractions during the summer months.

The detailed relationships between carbon fractions and carbon concentrations between sites and seasons are investigated in this work.

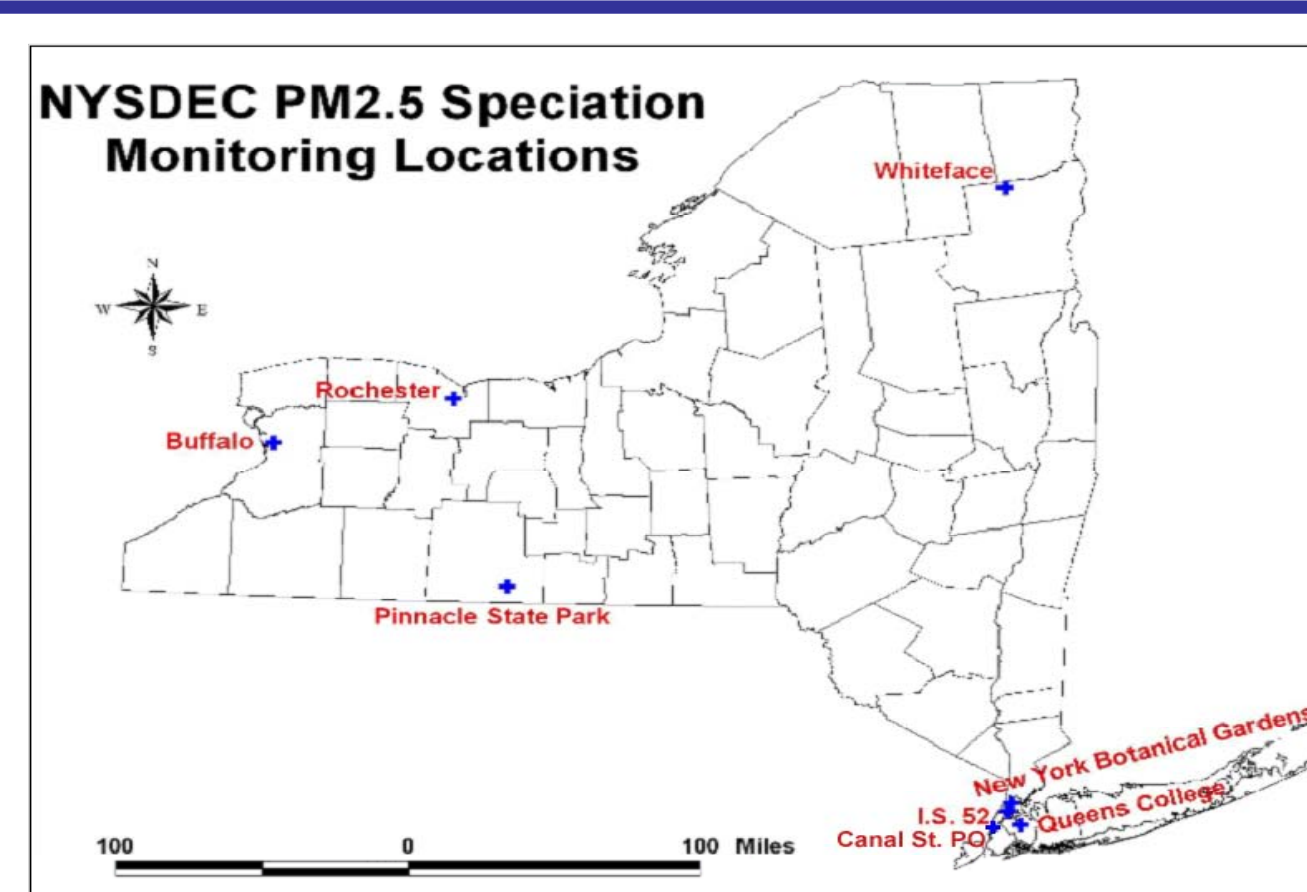
Sunset Thermal Optical Analysis (TOT)



Temperature Protocols – EPA CSN/TOT

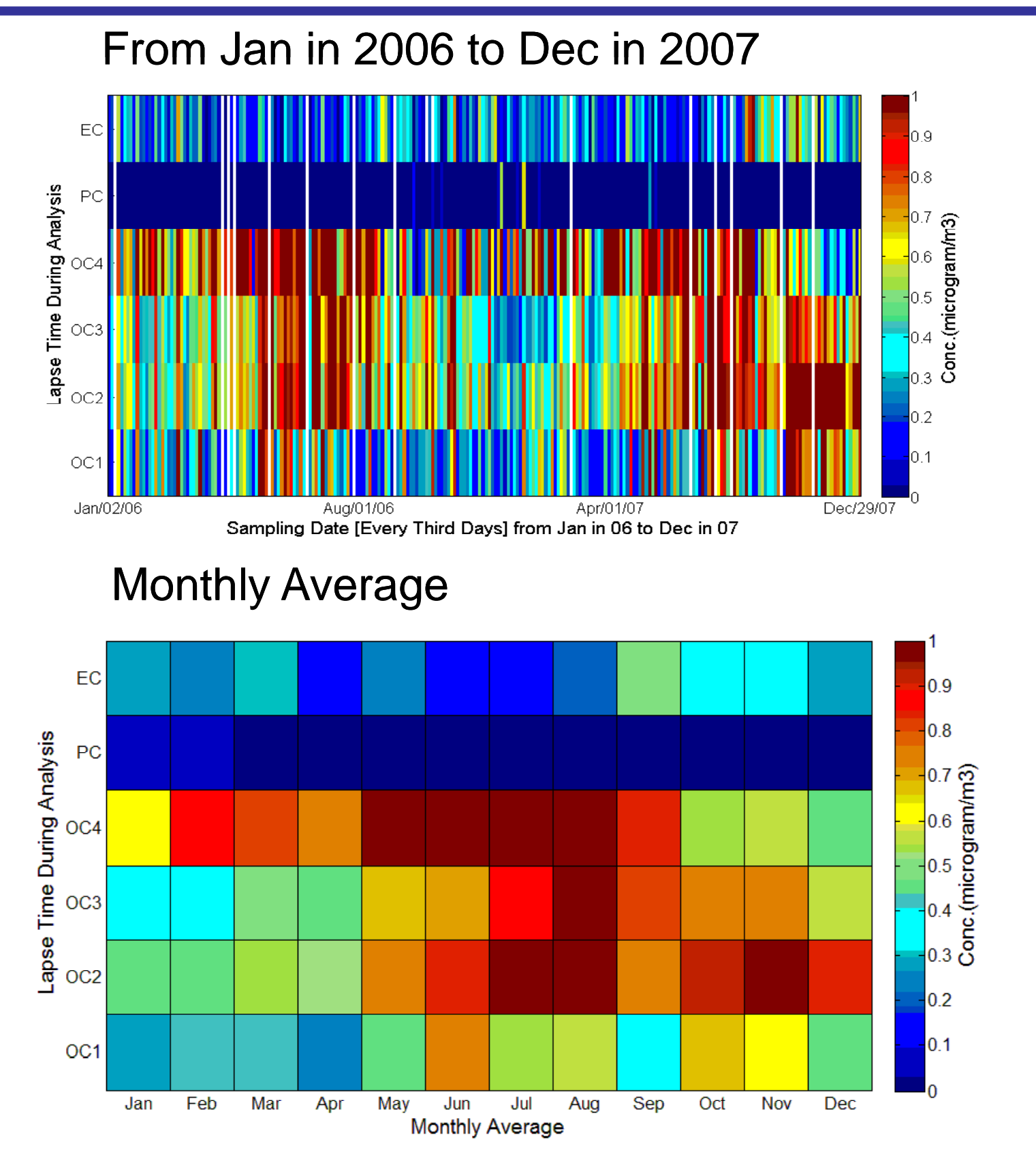
Gas	Hold Time (sec)	Temp. (°C)
He1	60	310
He2	60	480
He3	60	615
He4	90	900
He-purge	30	Oven cool down
He:O2-1	45	600
He:O2-2	45	675
He:O2-3	45	750
He:O2-4	45	825
He:O2-5	120	920
Total (sec)	600	

CSN sampling sites

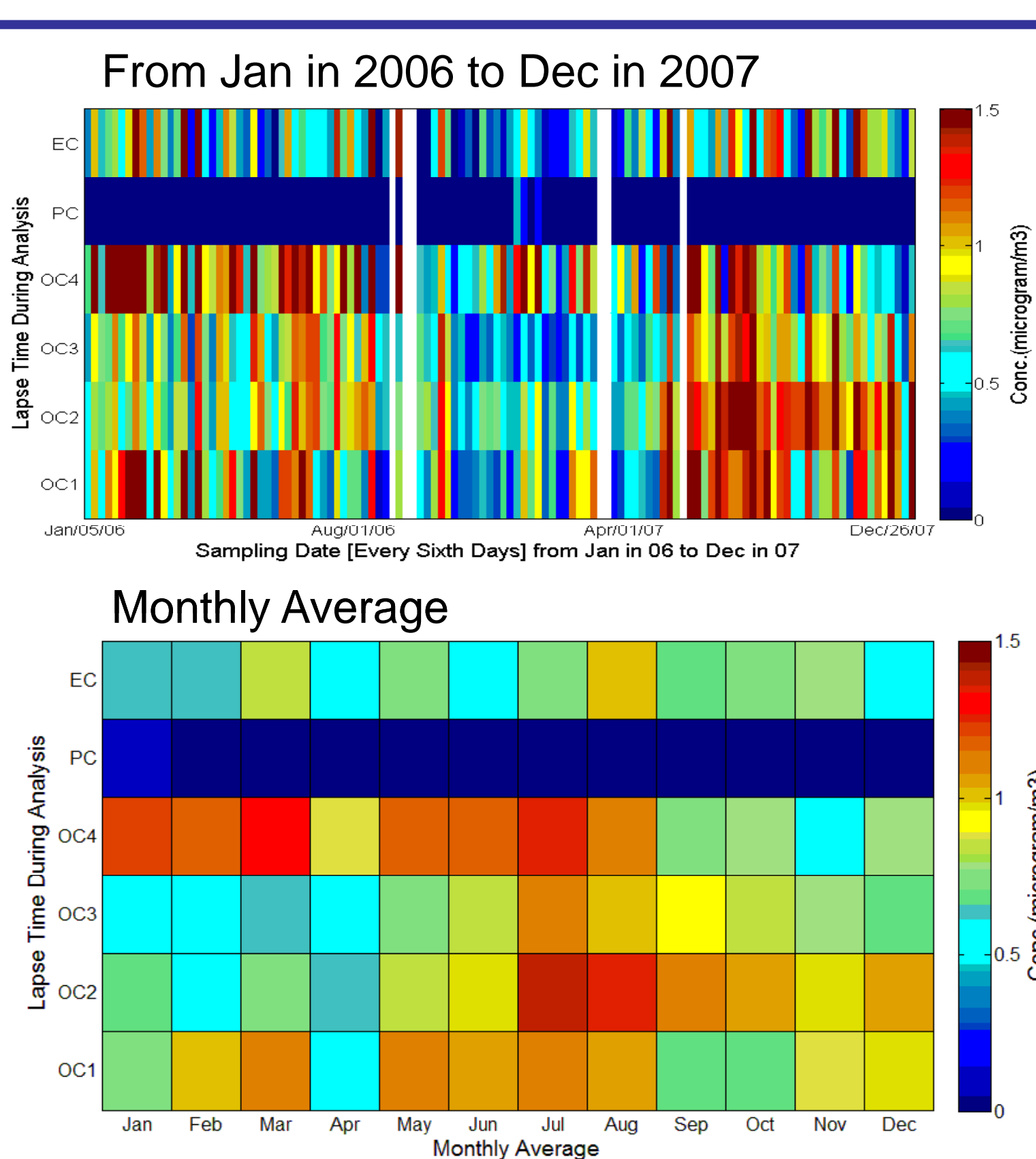


Buffalo CAM	BUFF
Whiteface Base CAM	WHITE
Rochester CAM	RCH2
Pinnacle State Park	PSP
I.S. 52	IS52
Queens College II (PS 219)	QCII
Canal Street Post Office	CANL

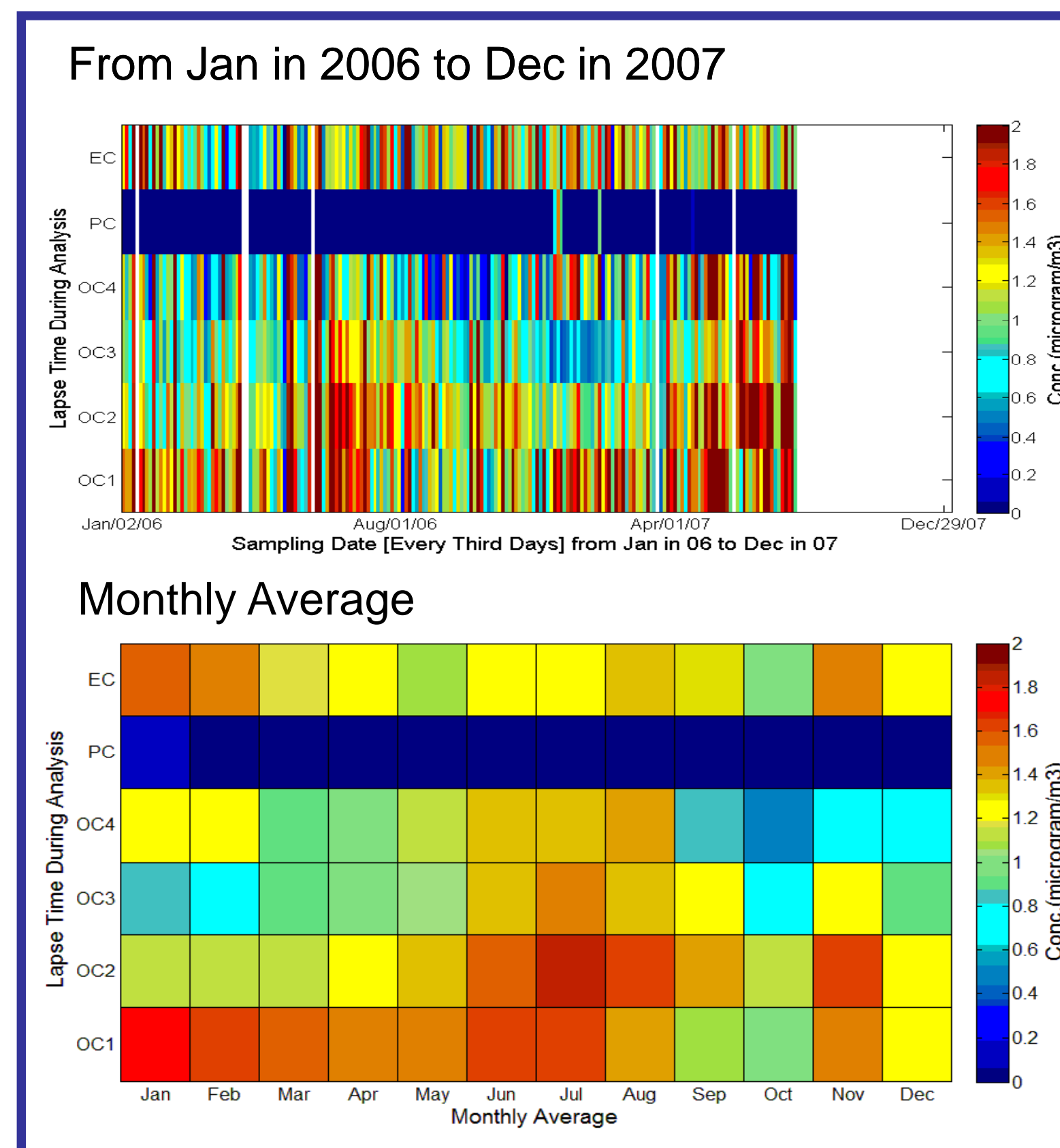
PSP



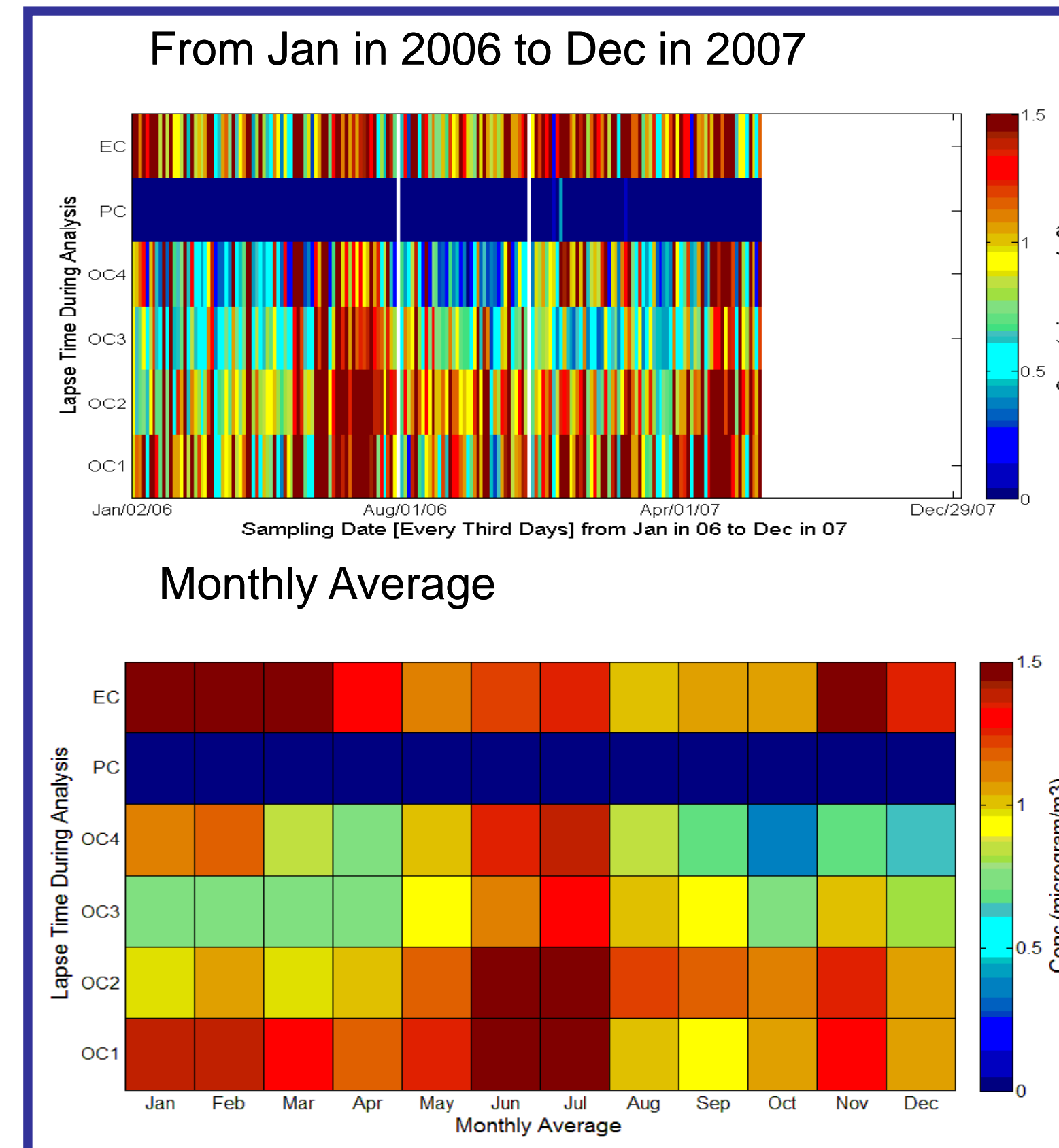
BUFF



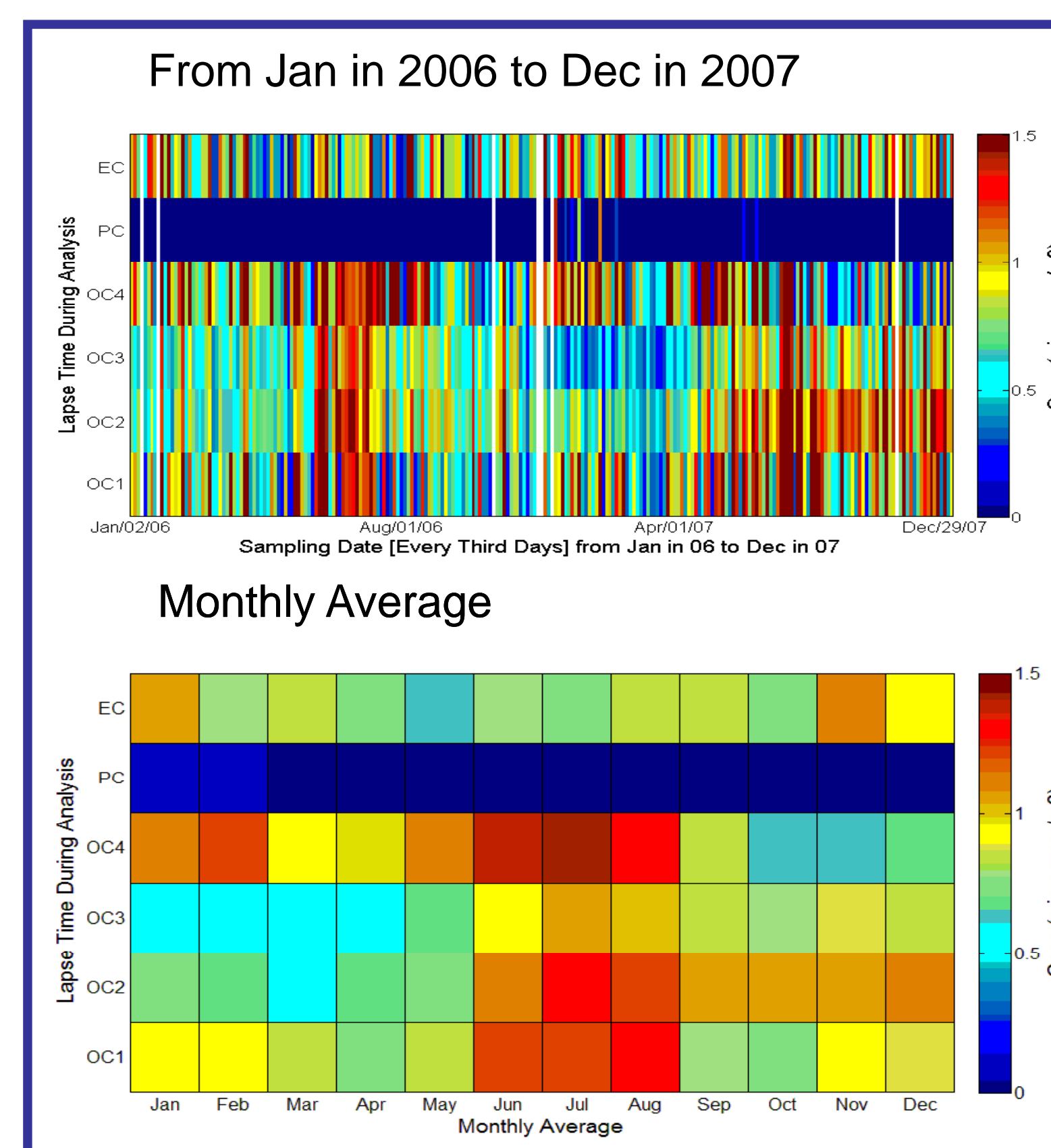
CANL



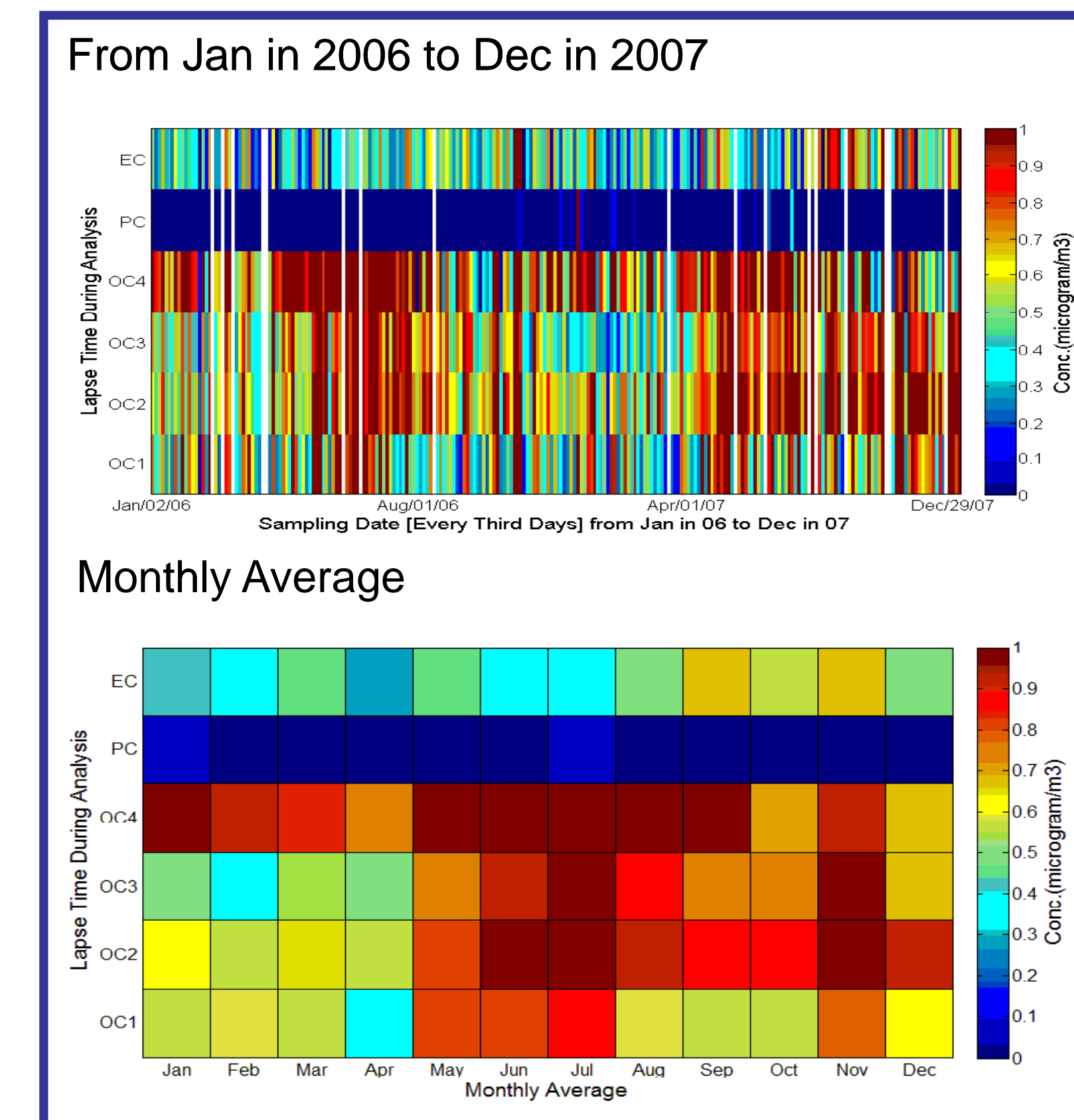
IS52



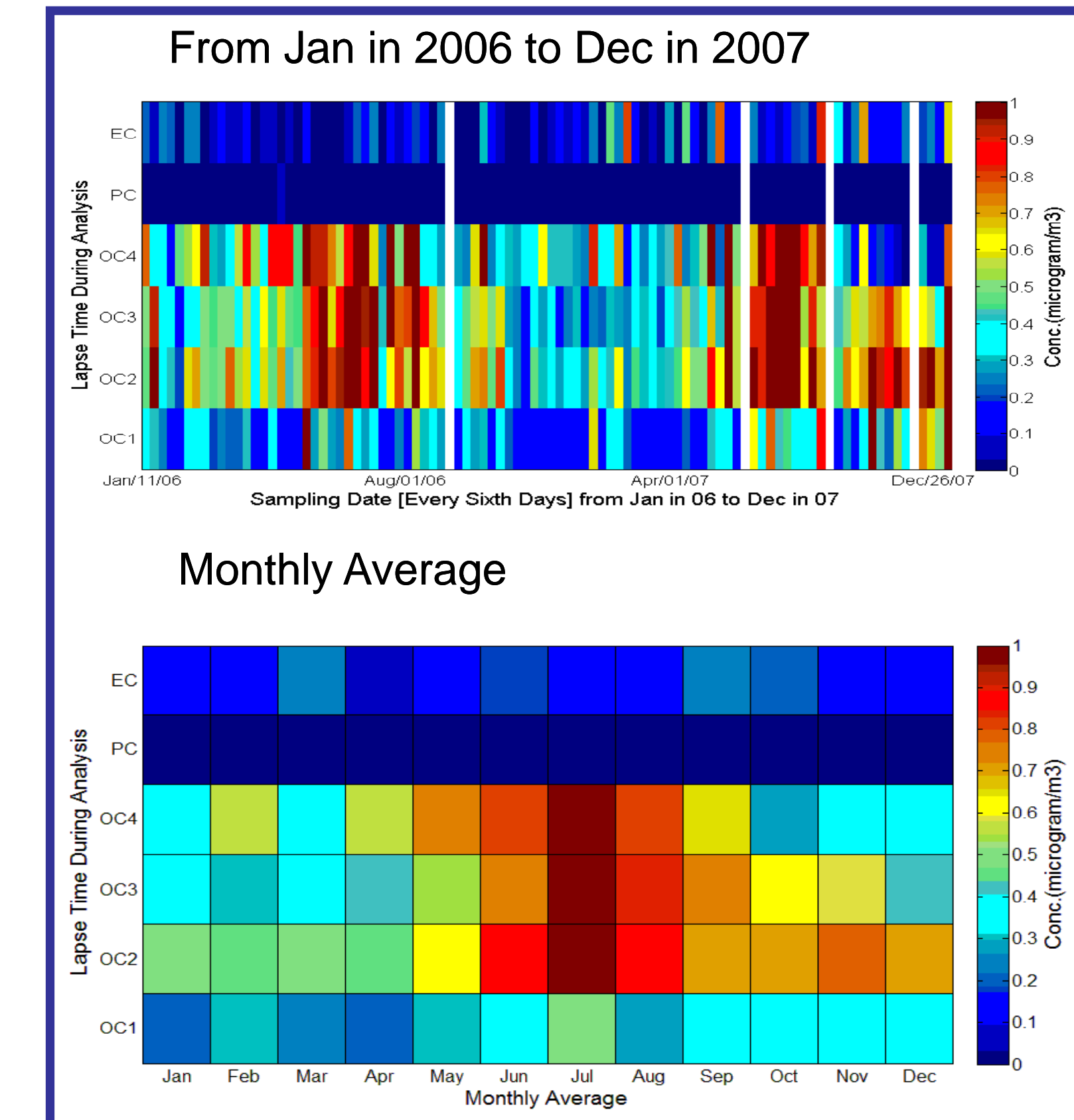
QC II



RCH2



WHITE



SUMMARY

Samples are collected at the seven sites in NY, then analyzed by the EPA CSN/TOT (NIOSH5040) protocol. Six carbon fractions are reported - OC1-OC4, OP and EC.

Strong seasonal dependence – Summer maximum – most noticeable in the rural (WHITE and PSP) data in the higher (OC2-OC4) fractions – likely SOA. Winter OC1 contribution - largest at the most traffic-impacted sites of IS52 (South Bronx) and Canal Street in Manhattan. Highly volatile fresh emissions from motor vehicles in particular.

ACKNOWLEDGEMENT

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