INSTRUMENT Species
ACVT subgroup: CH_4 N_2O, and CO SCIAMACHY

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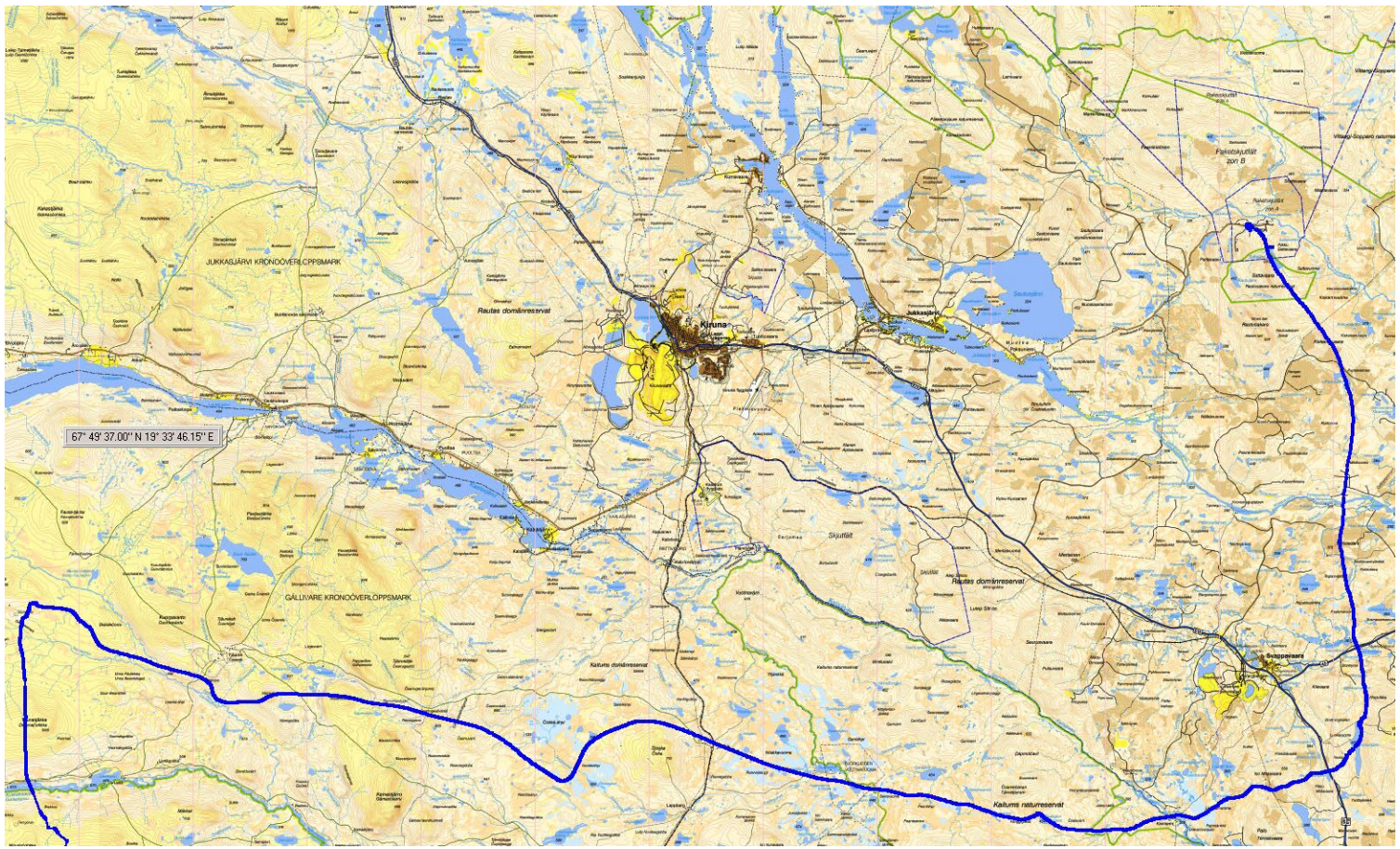
CH_4 N_2O, and CO columns from balloons measurements compared to SCIAMACHY columns

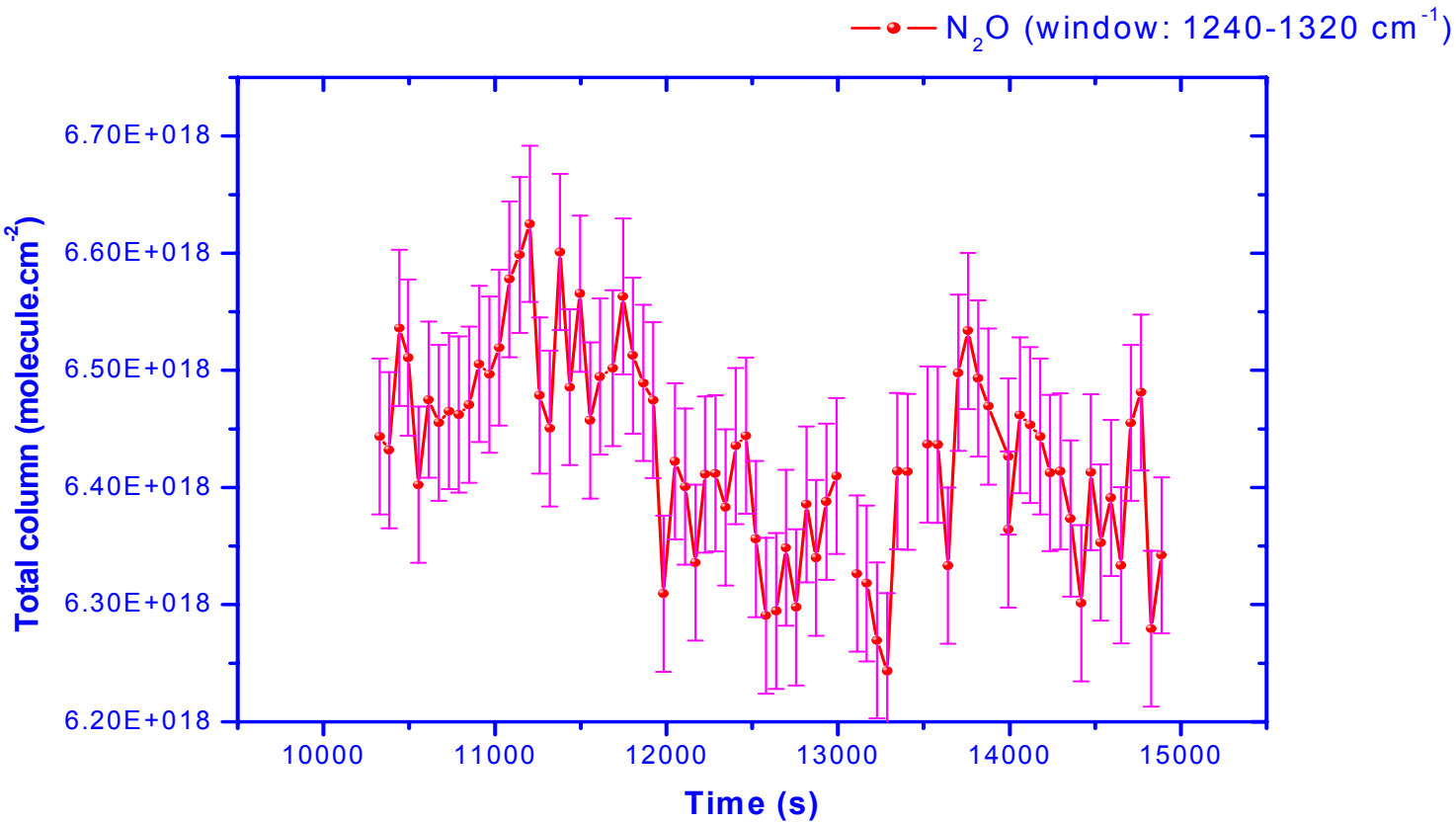
Only one balloon data set available!

-IASI-balloon measurements (C. Camy-Peyret, G. Dufour, V. Ferreira, S. Payan, Y. Té, P. Jeseck)

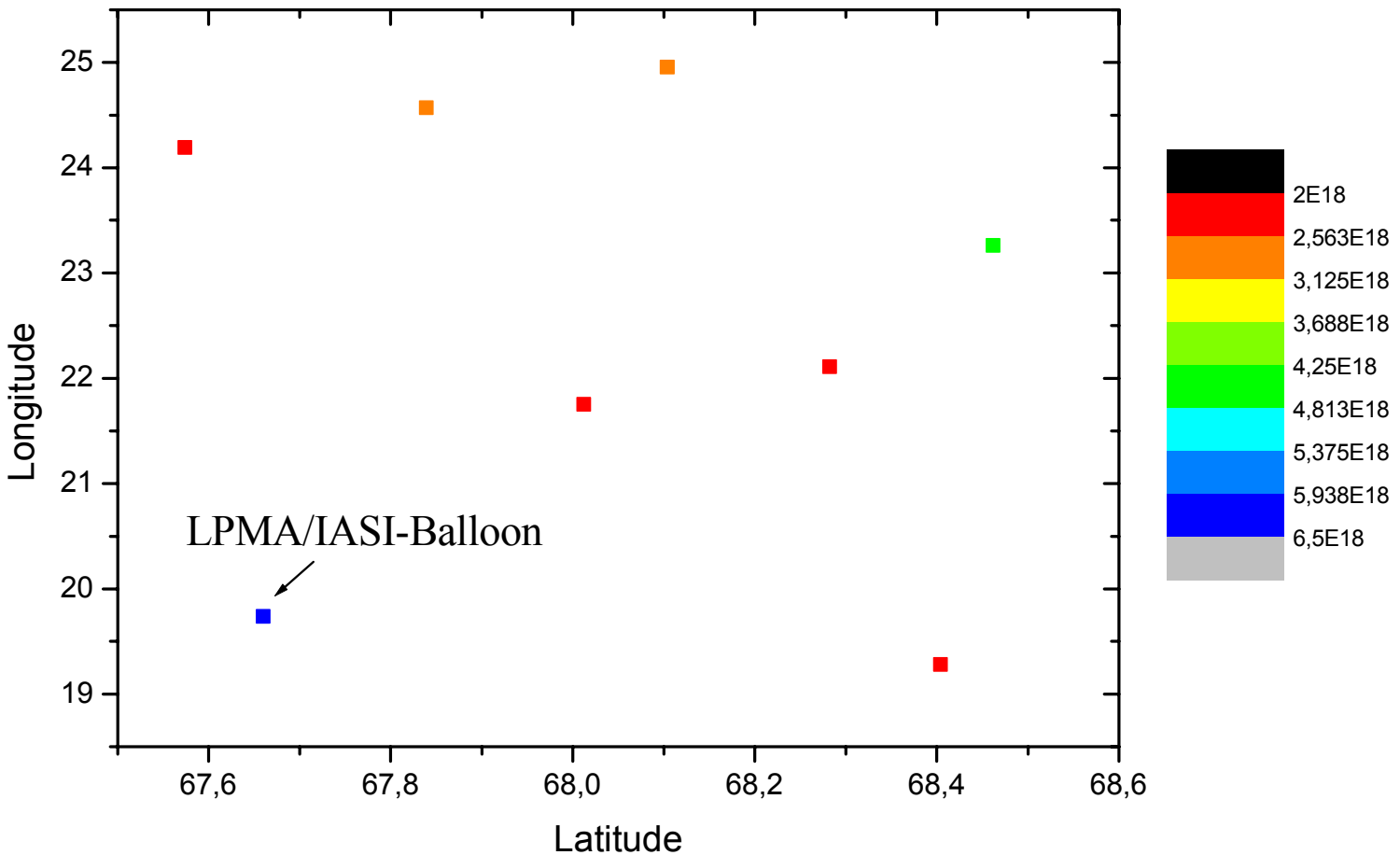
Balloon trajectory around Kiruna (05/08/2002)

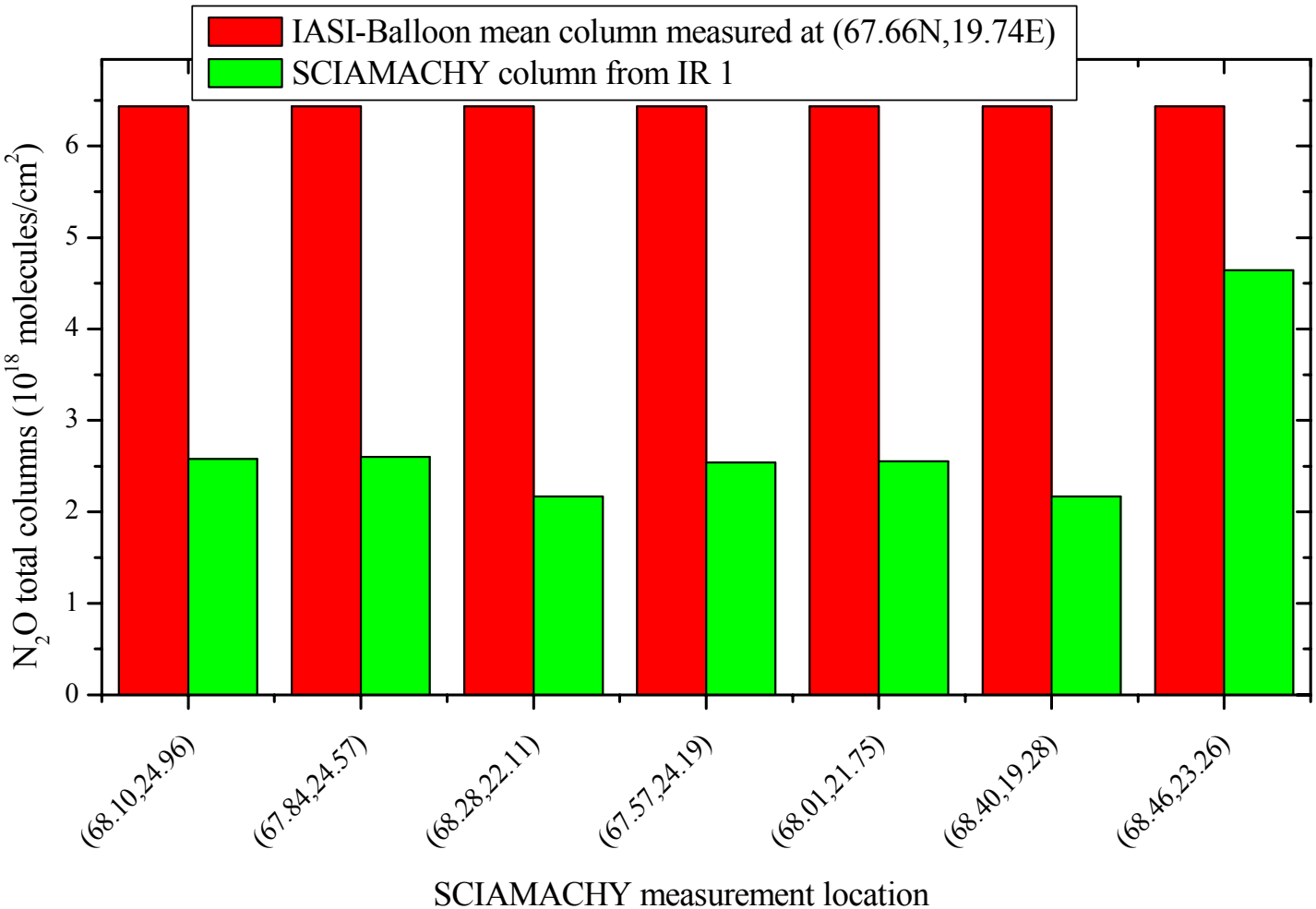


Retrieved N_2O columns along the trajectory (in the CH_4 window)

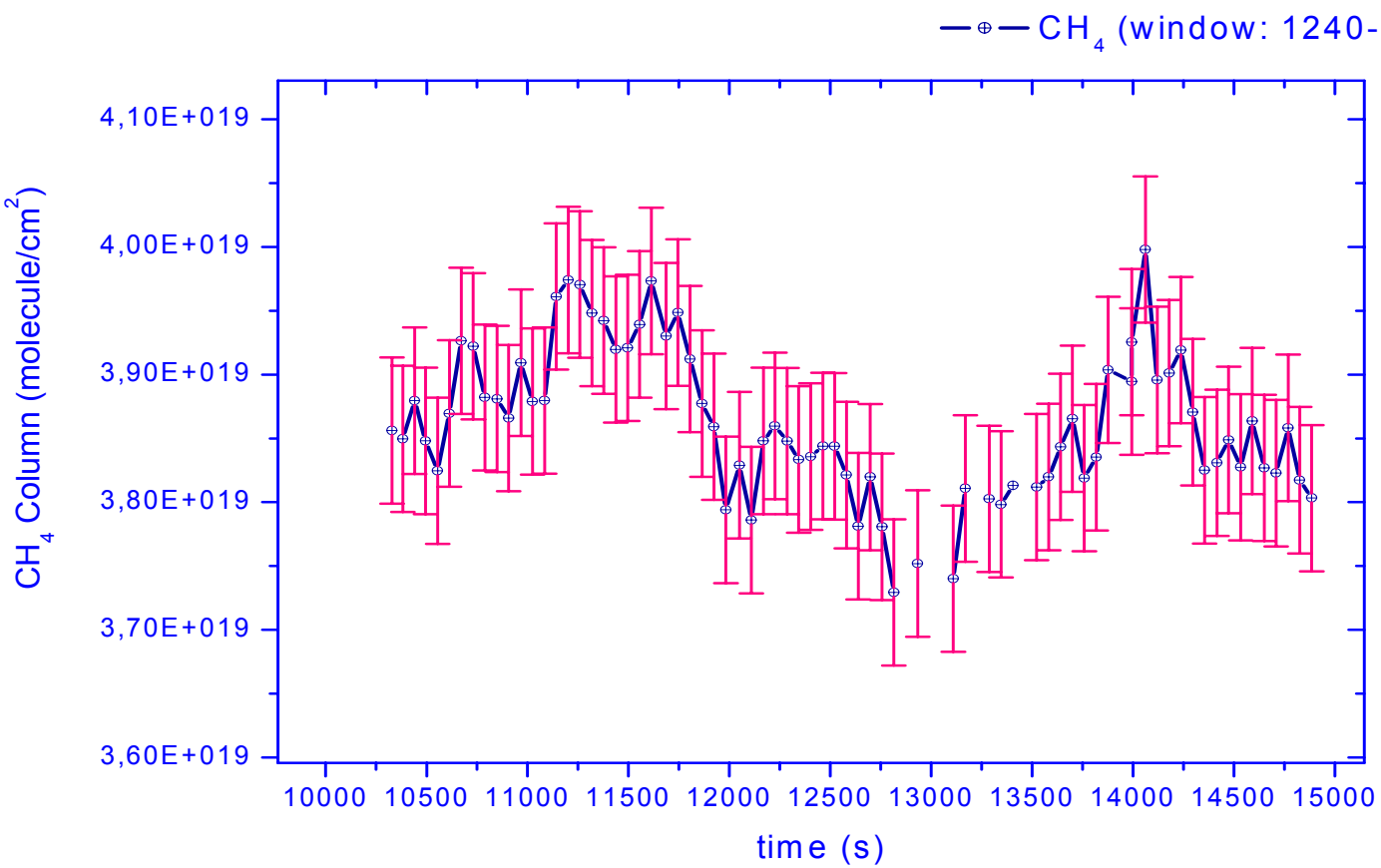


N_2O total columns measured by SCIA in the IR1 band

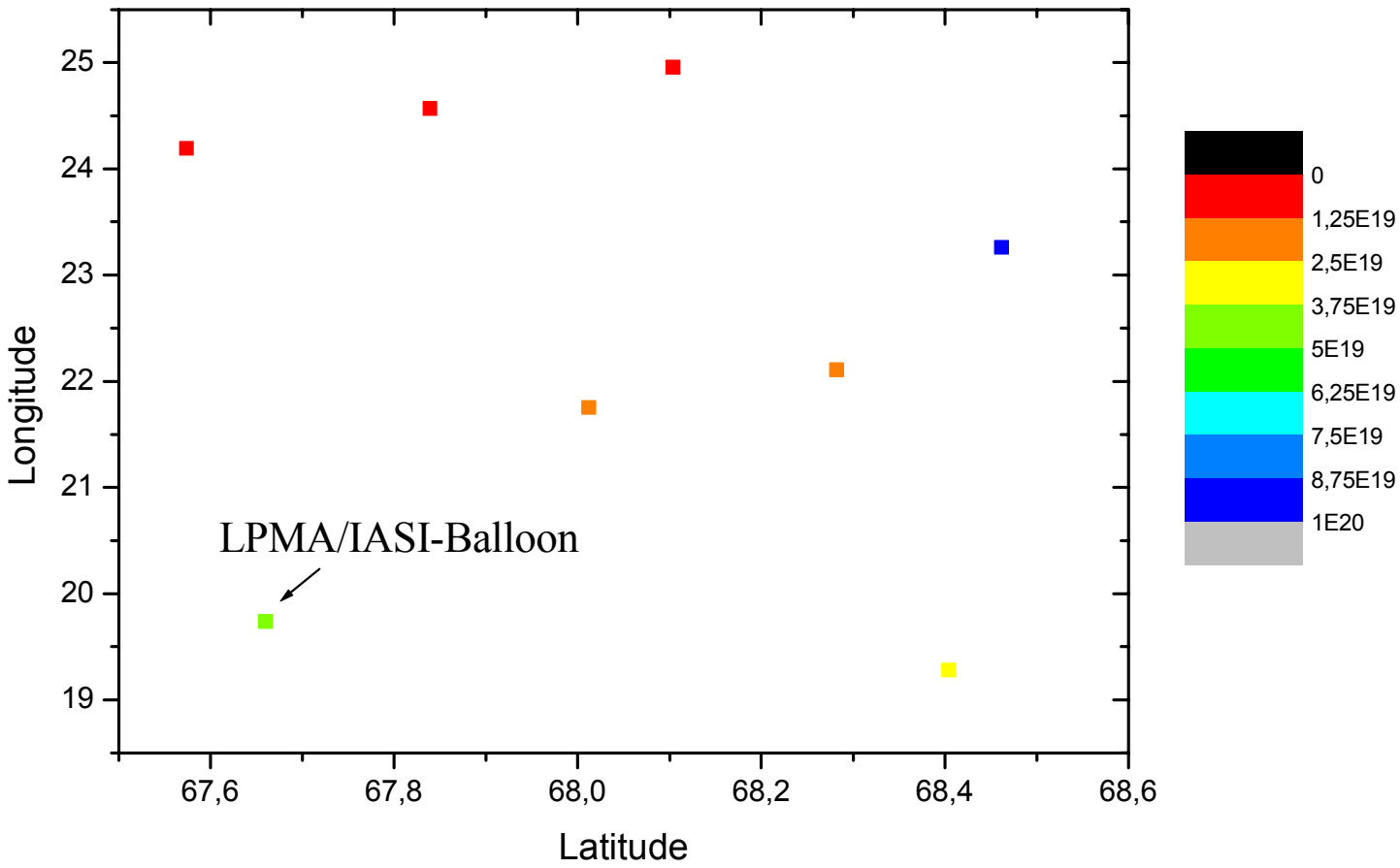


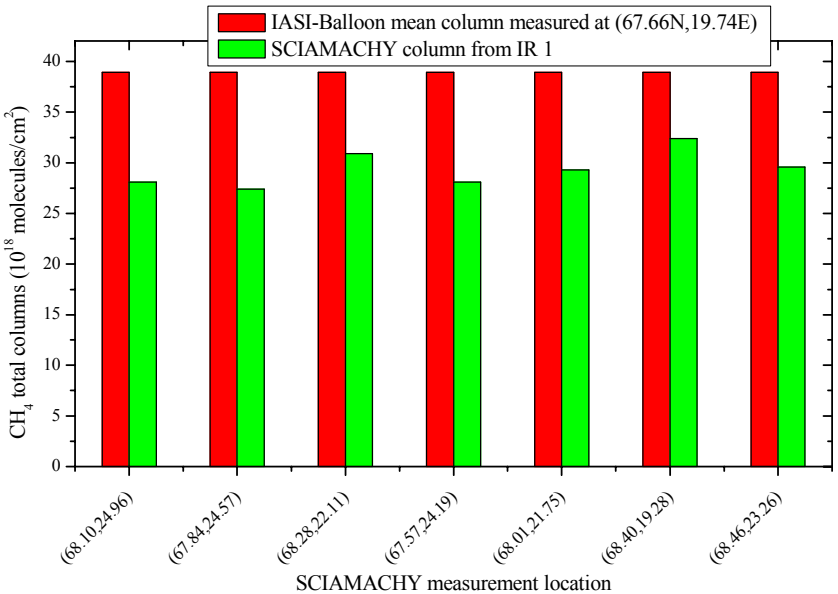

IASI-Balloon mean column measured at (67.66N,19.74E)
SCIAMACHY column from IR 1
N2O total columns (10^18 molecules/cm^2)
0
1
2
3
4
5
6
(68.10,24.96)
(67.84,24.57)
(68.28,22.11)
(67.57,24.19)
(68.01,21.75)
(68.40,19.28)
(68.46,23.26)
SCIAMACHY measurement location

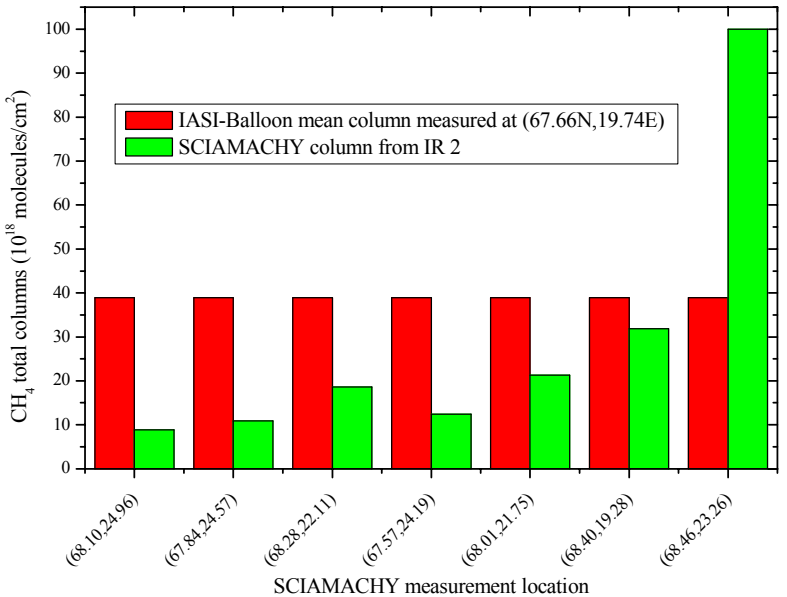
Retrieved CH_4 columns along the trajectory

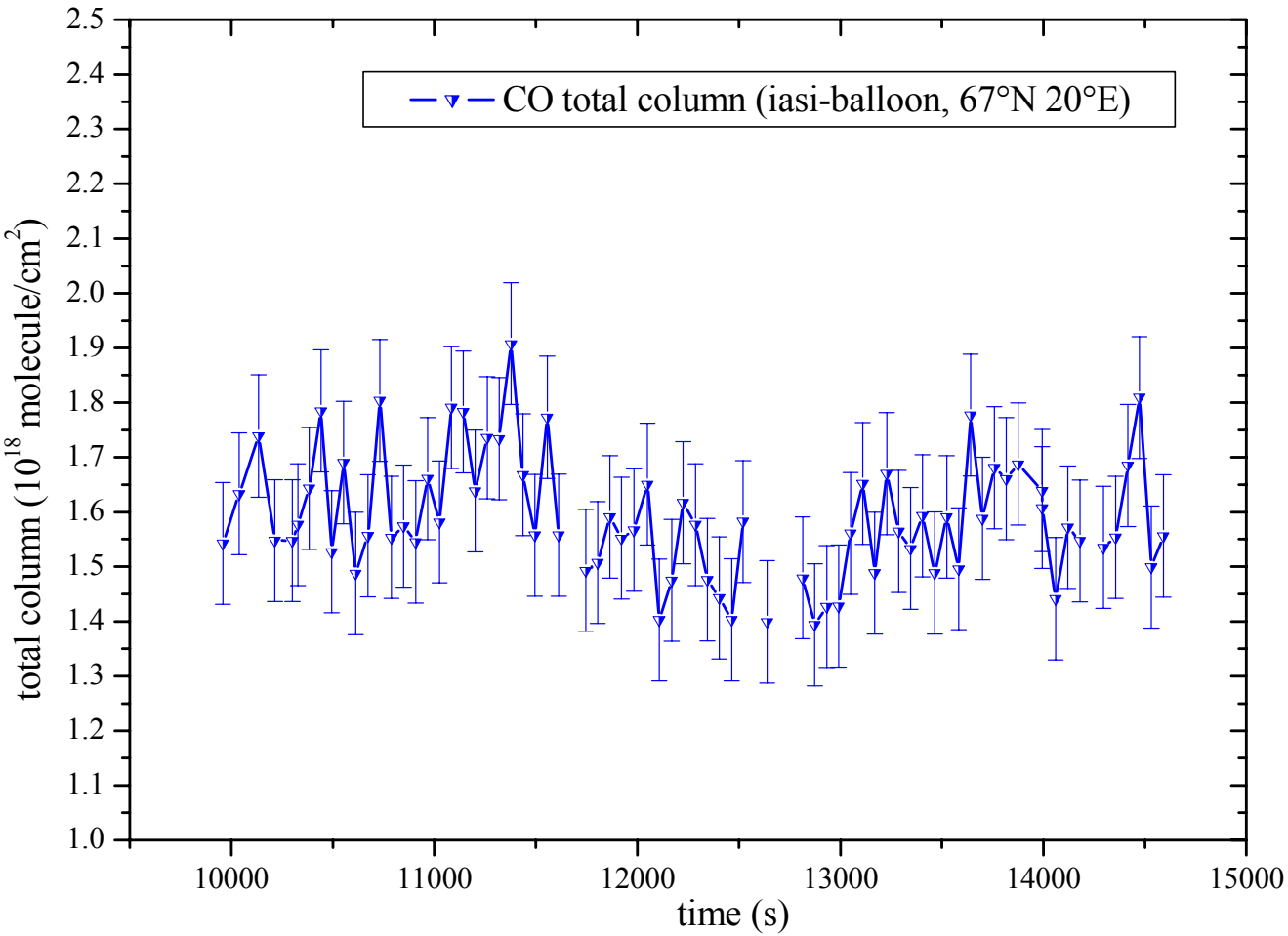


CH_4 total columns measured by SCIA in the IR2 band




IASI-Balloon mean column measured at (67.66N,19.74E)
SCIAMACHY column from IR 1
CH4 total columns (10^18 molecules/cm^2)
0
5
10
15
20
25
30
35
40
(68.10,24.96)
(67.84,24.57)
(68.28,22.11)
(67.57,24.19)
(68.01,21.75)
(68.40,19.28)
(68.46,23.26)
SCIAMACHY measurement location


IASI-Balloon mean column measured at (67.66N,19.74E)
SCIAMACHY column from IR 2
CH4 total columns (10^18 molecules/cm^2)
0
10
20
30
40
50
60
70
80
90
100
(68.10,24.96)
(67.84,24.57)
(68.28,22.11)
(67.57,24.19)
(68.01,21.75)
(68.40,19.28)
(68.46,23.26)
SCIAMACHY measurement location


CO total column (iasi-balloon, 67°N 20°E)
total column (10^{18} molecule/cm^2)
time (s)
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
10000
11000
12000
13000
14000
15000

Conclusions

Comparison of balloon columns with SCIAMACHY columns

(limited number of correlative measurements)

- CH_4
- ✓ Significant differences between SCIAMACHY IR1 and IR2
- ✓ IR1 results seems more consistent than IR2 but have a negative bias
- ✓ Product not yet mature enough for precise comparisons
- N_2O
- ✓ Unrealistic variations of the columns
- ✓ SCIAMACHY columns are too low
- ✓ Product not yet mature enough for precise comparisons
- *CO*
- ✓ For one case 6 out of 7 coincident columns of SCIAMACHY were negative