EUBREWNET real time ozone processing, comparison of Brewer users processing software tools.

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- Observations from three stations, Sodankyla, Aosta and Izaña in the period 2012-2014 are processed by the EUBREWNET processing scheme and compared with Brewer software packages commonly used by operators for total ozone determination (Koskela 2009). The **O3Brewer processing software (developed by M. Stanek)** is used in the case of Sodankyla (Karppinen 2016) and the **Brewer Processing Software (BPS, developed by V. Fioletov)** in the case of Aosta station whereas the RBCC-E analysis tools are used for the Izaña series. The first two software tools, O3Brewer and BPS, are routinely used by operators for data submission to the World Ozone and Ultraviolet Data Center (WOUDC).

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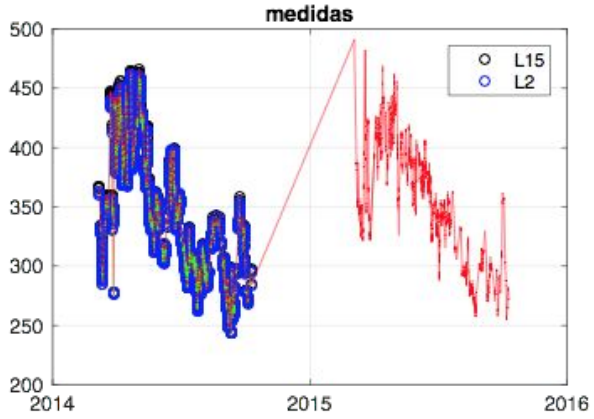
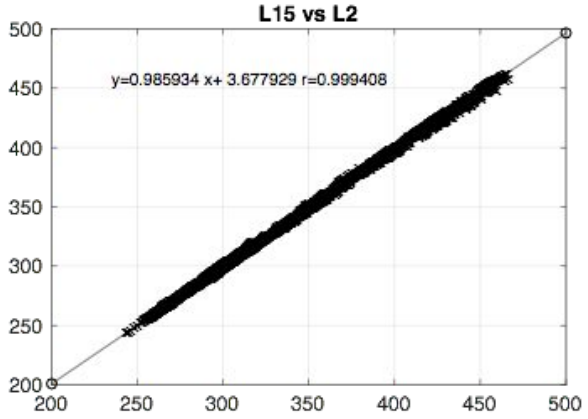
Tapani Koskela; Ozone column recorded by different processing software packages, THE TWELFTH BIENNIAL WMO CONSULTATION ON BREWER OZONE AND UV SPECTROPHOTOMETER OPERATION, CALIBRATION AND DATA REPORTING ,Aosta, Italy, 20-26 September 2009

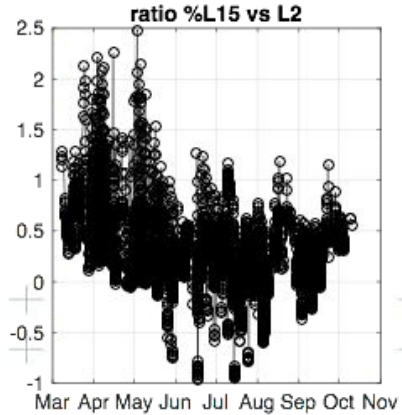
Fioletov : **Brewer Processing Software**: http://es-ee.tor.ec.gc.ca/Brewer_Processing_Software/brewer_processing_software.pdf access

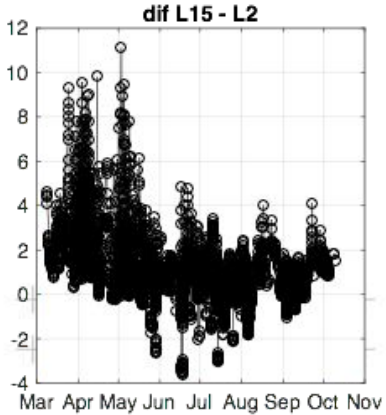
Stanek, M.: **O3Brewer**, http://www.o3soft.eu/o3brewer.html, accessed November 24, 2015.

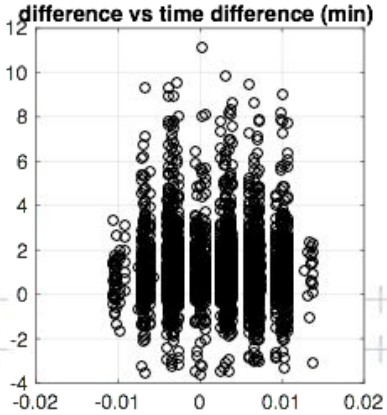
Sodankyla

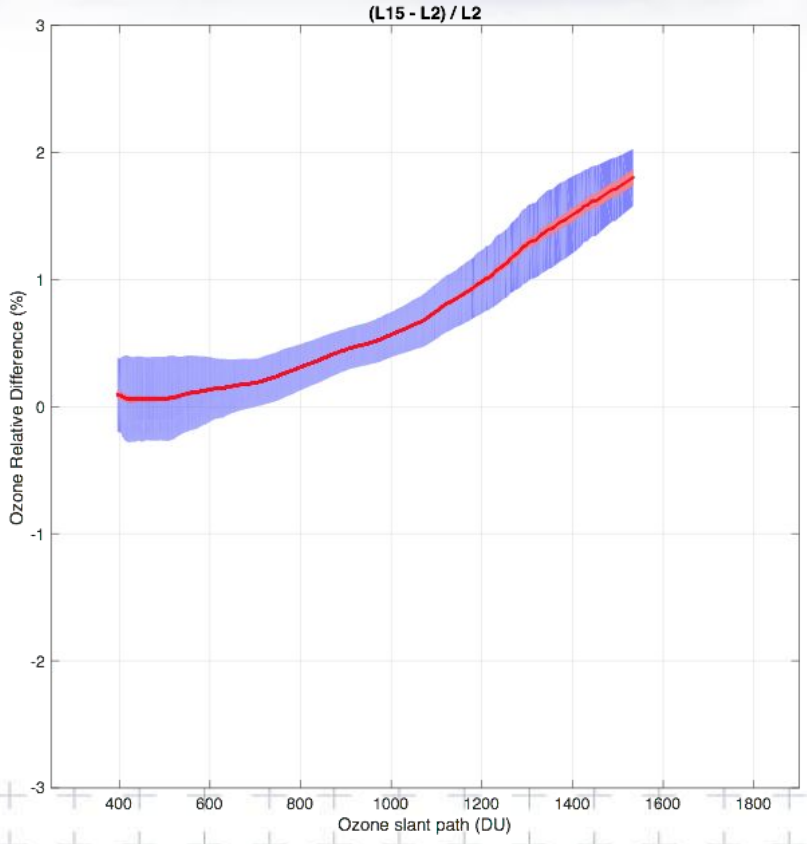

medidas
L15
L2
500
450
400
350
300
250
200
2014
2015
2016

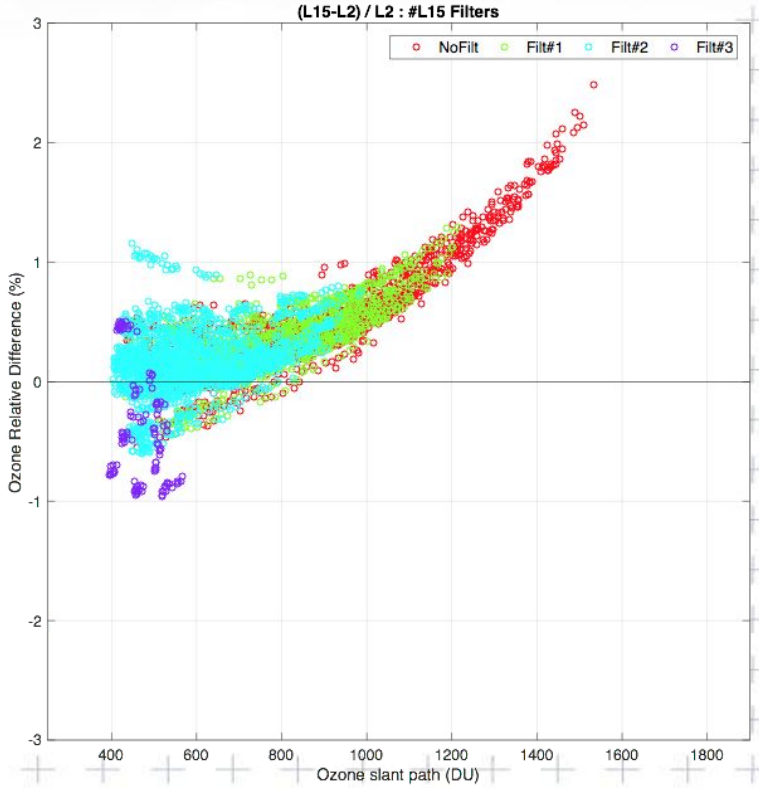

L15 vs L2
y=0.985934 x+ 3.677929 r=0.999408
500
450
400
350
300
250
200
200
250
300
350
400
450
500

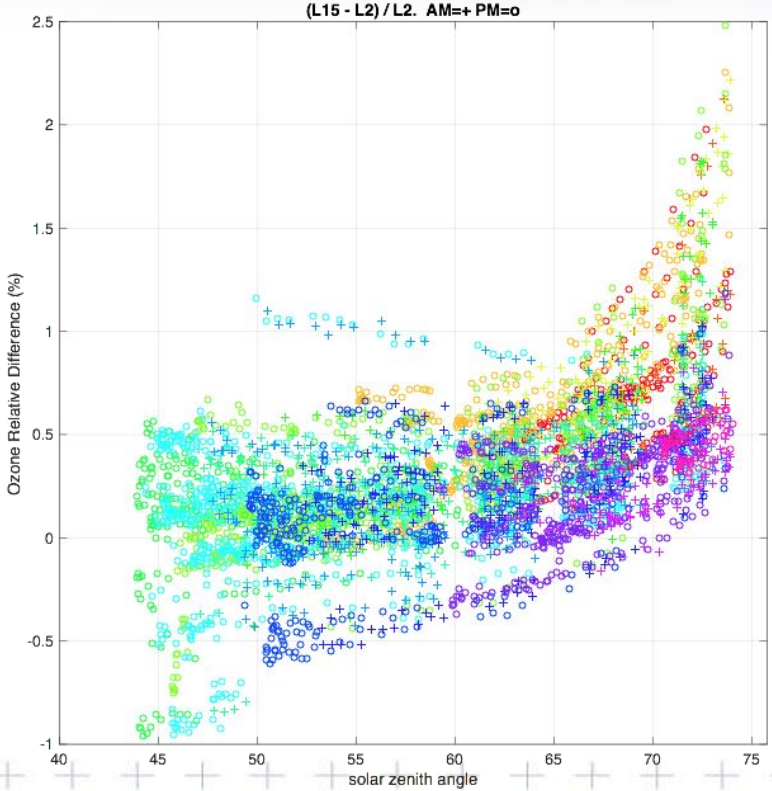

ratio %L15 vs L2
2.5
2
1.5
1
0.5
0
-0.5
-1
Mar Apr May Jun Jul Aug Sep Oct Nov

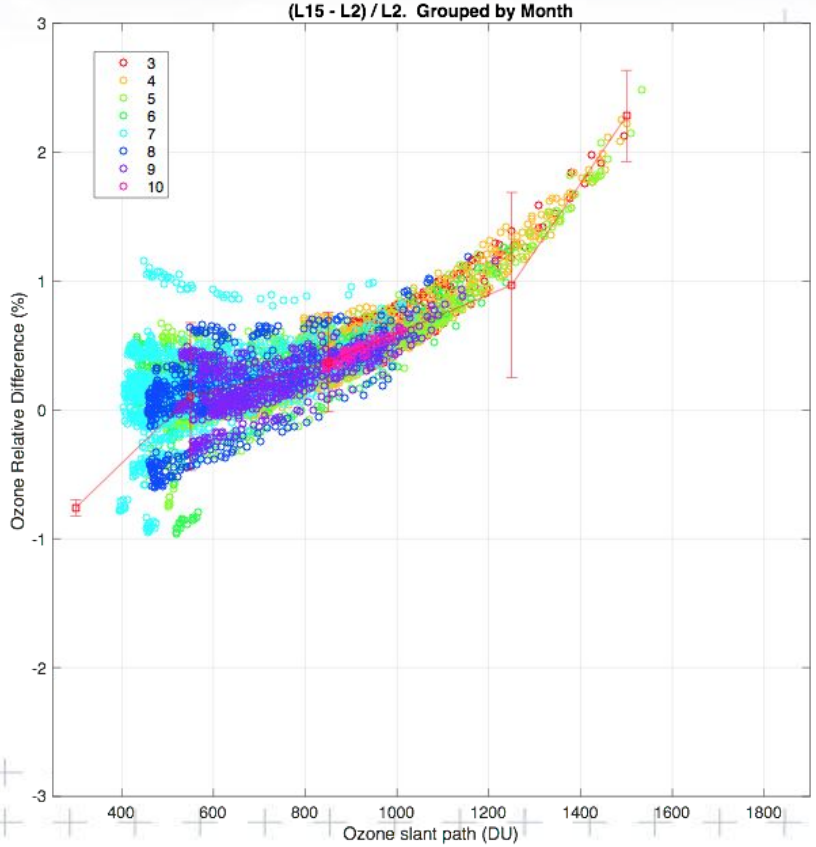

dif L15 - L2
12
10
8
6
4
2
0
-2
-4
Mar Apr May Jun Jul Aug Sep Oct Nov

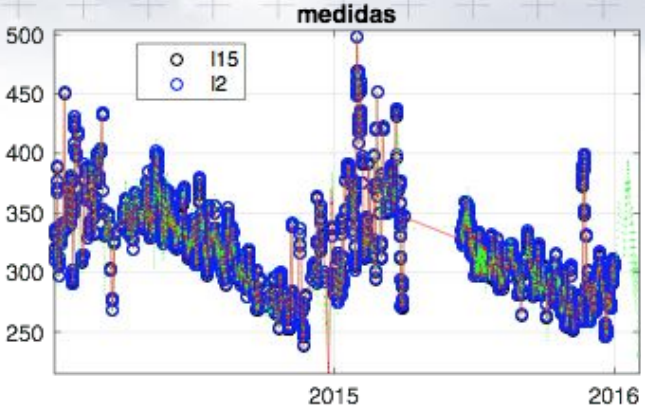

difference vs time difference (min)
12
10
8
6
4
2
0
-2
-4
-0.02
-0.01
0
0.01
0.02

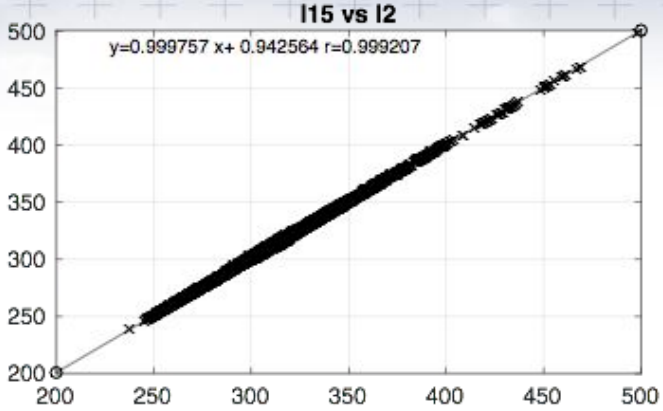

(L15 - L2) / L2
Ozone Relative Difference (%)
Ozone slant path (DU)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800

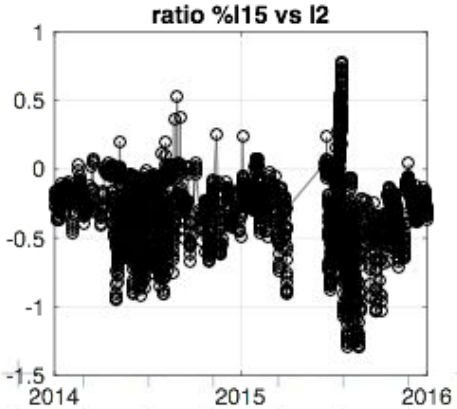

(L15-L2) / L2 : #L15 Filters
NoFilt
Filt#1
Filt#2
Filt#3
Ozone Relative Difference (%)
Ozone slant path (DU)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800

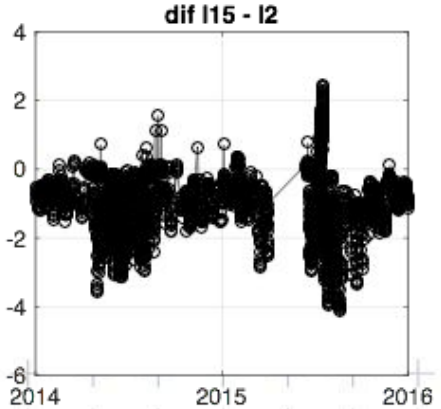

(L15 - L2) / L2. AM=+ PM=o
Ozone Relative Difference (%)
solar zenith angle
2.5
2
1.5
1
0.5
0
-0.5
-1
40
45
50
55
60
65
70
75

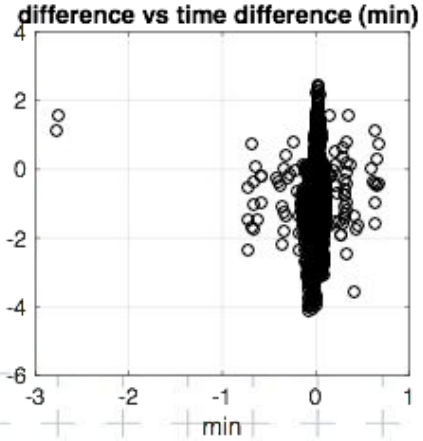

(L15 - L2) / L2. Grouped by Month
3
4
5
6
7
8
9
10
Ozone Relative Difference (%)
Ozone slant path (DU)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800


medidas
I15
I2
500
450
400
350
300
250
2015
2016

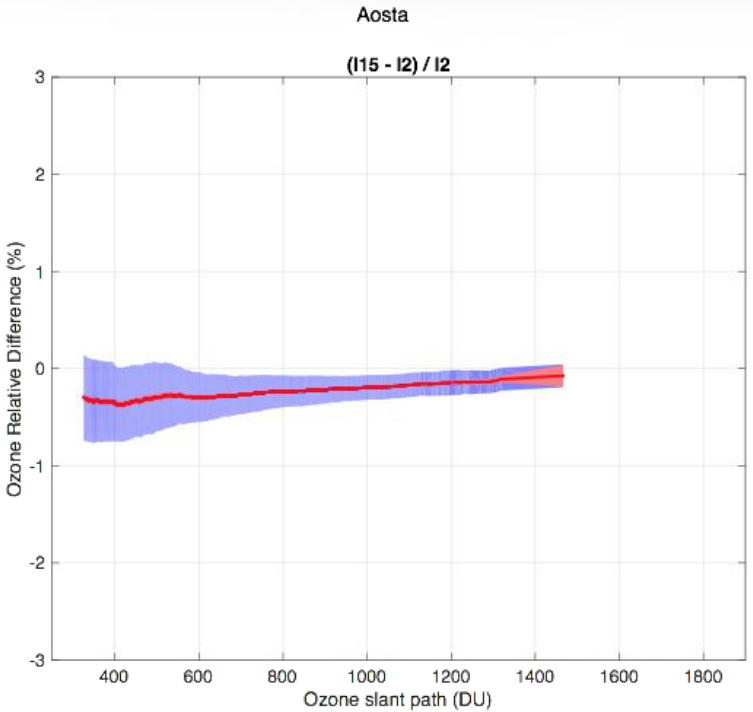

I15 vs I2
y=0.999757 x+ 0.942564 r=0.999207
500
450
400
350
300
250
200
200
250
300
350
400
450
500

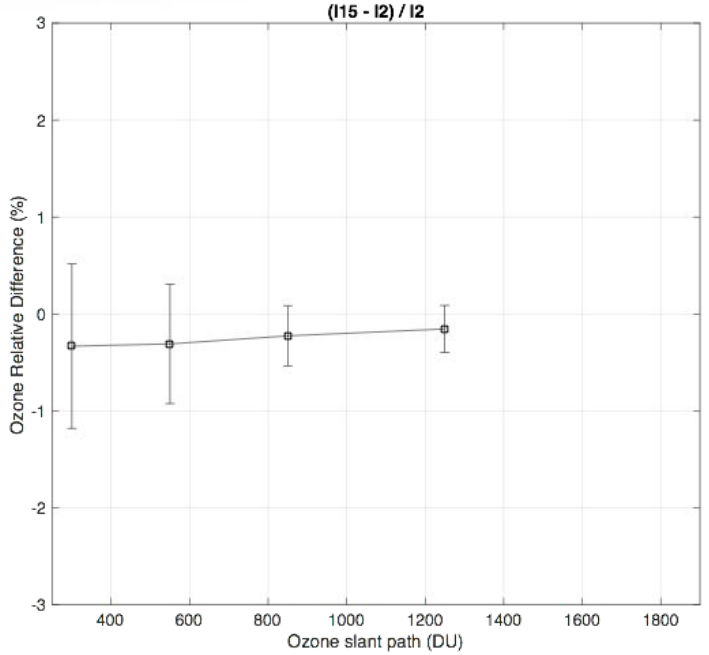

ratio %I15 vs I2
1
0.5
0
-0.5
-1
-1.5
2014
2015
2016

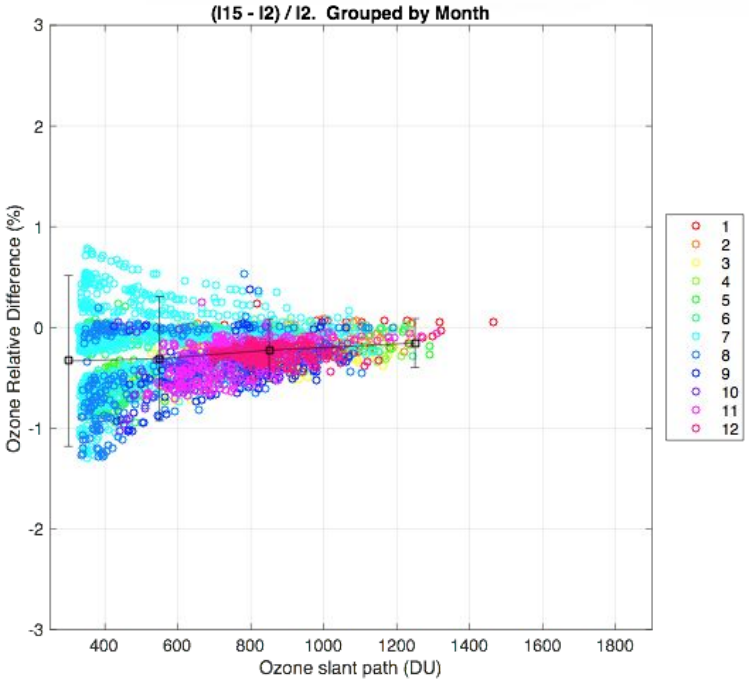

dif I15 - I2
4
2
0
-2
-4
-6
2014
2015
2016

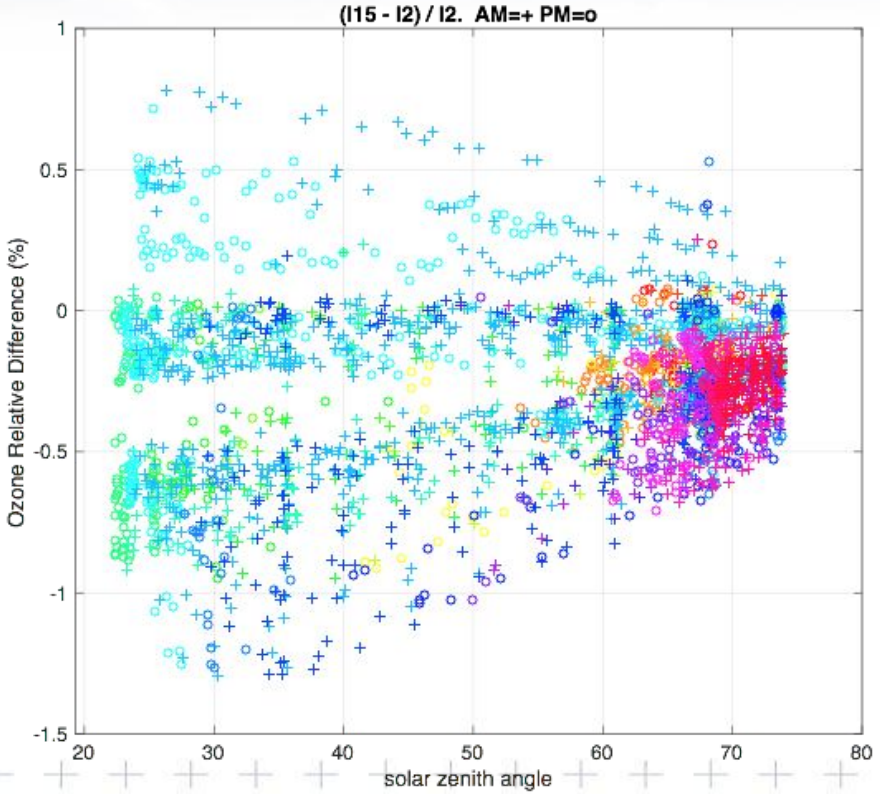

difference vs time difference (min)
4
2
0
-2
-4
-6
-3
-2
-1
0
1
min

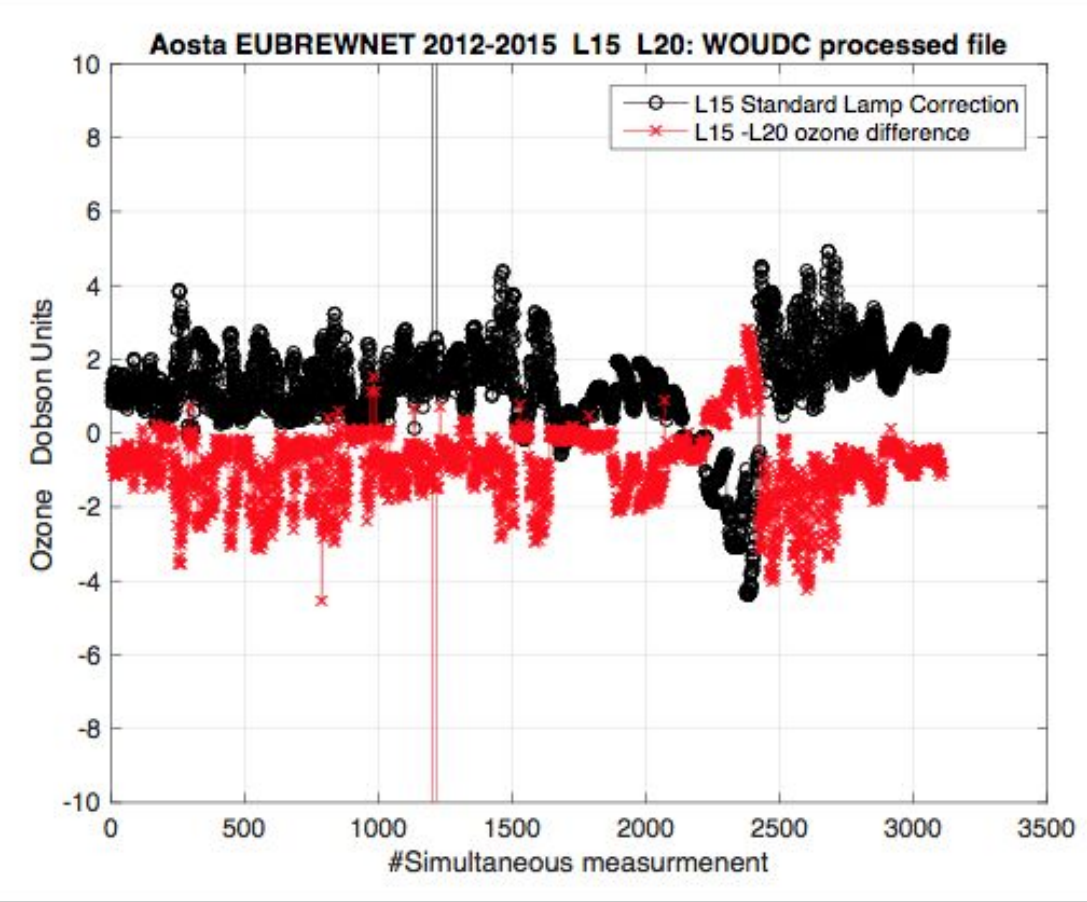
AOSTA


Aosta
(I15 - I2) / I2
Ozone Relative Difference (%)
Ozone slant path (DU)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800


(I15 - I2) / I2
Ozone Relative Difference (%)
Ozone slant path (DU)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800


(I15 - I2) / I2. Grouped by Month
Ozone Relative Difference (%)
Ozone slant path (DU)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800
1
2
3
4
5
6
7
8
9
10
11
12


(I15 - I2) / I2. AM=+ PM=o
Ozone Relative Difference (%)
solar zenith angle
1
0.5
0
-0.5
-1
-1.5
20
30
40
50
60
70
80


Aosta EUBREWNET 2012-2015 L15 L20: WOUDC processed file
L15 Standard Lamp Correction
L15 -L20 ozone difference
Ozone Dobson Units
#Simultaneous measurmenent
10
8
6
4
2
0
-2
-4
-6
-8
-10
0
500
1000
1500
2000
2500
3000
3500

Do you want to join the experiment with your ozone L2 data.

What we need : time,ozone, **filter and temperature ?**

Thanks !!

The RBCC-E Team

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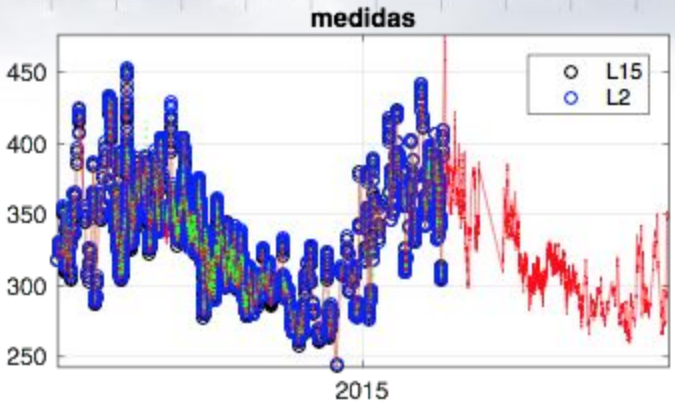
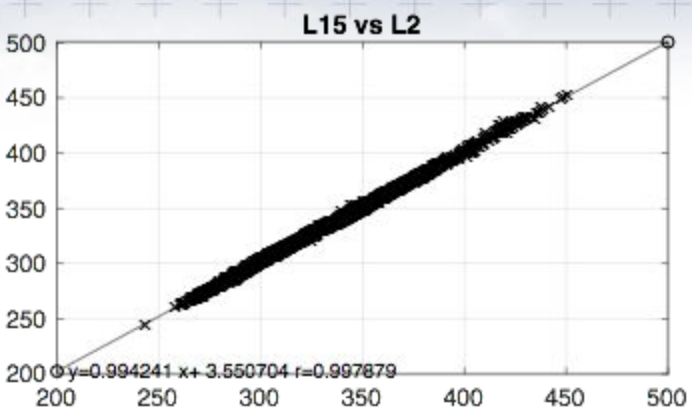
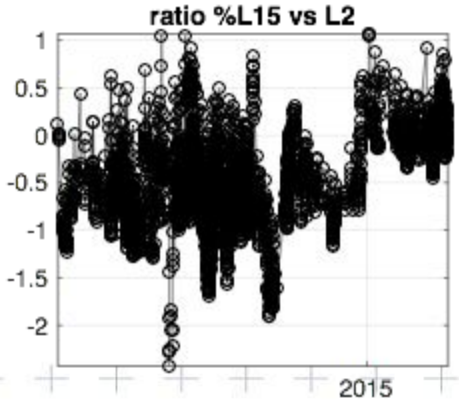
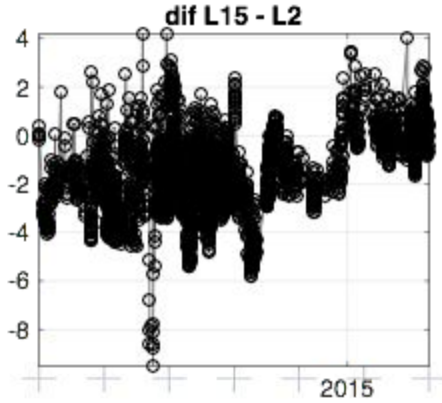
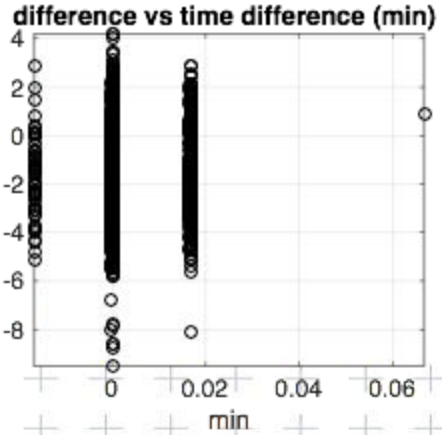
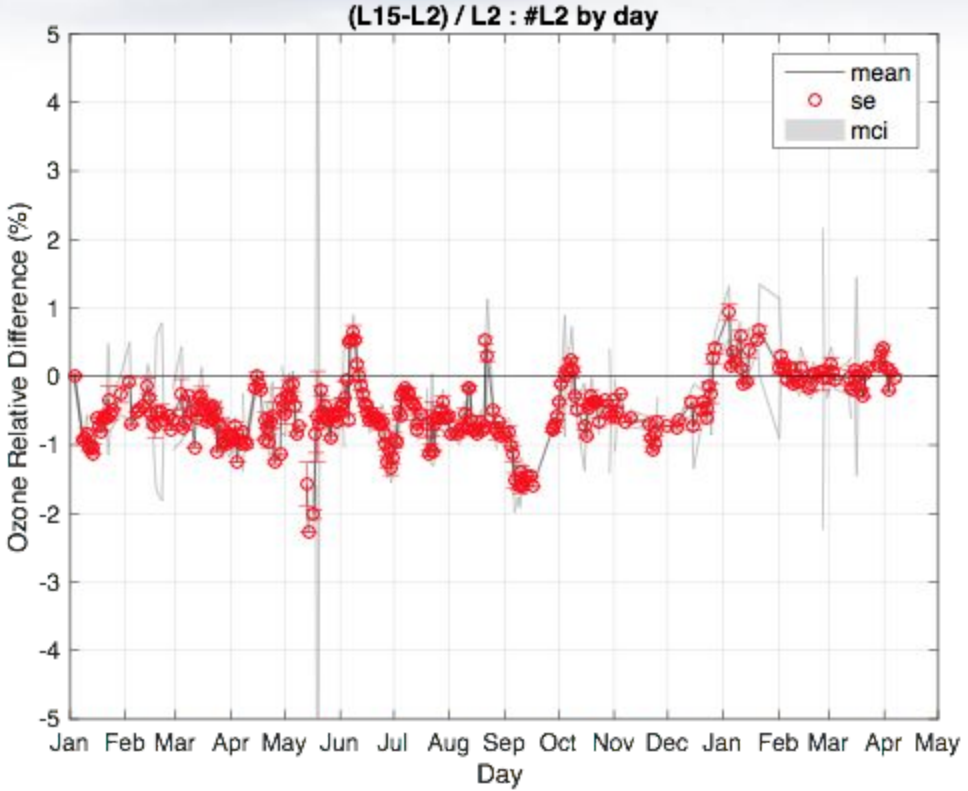

medidas
L15
L2
450
400
350
300
250
2015

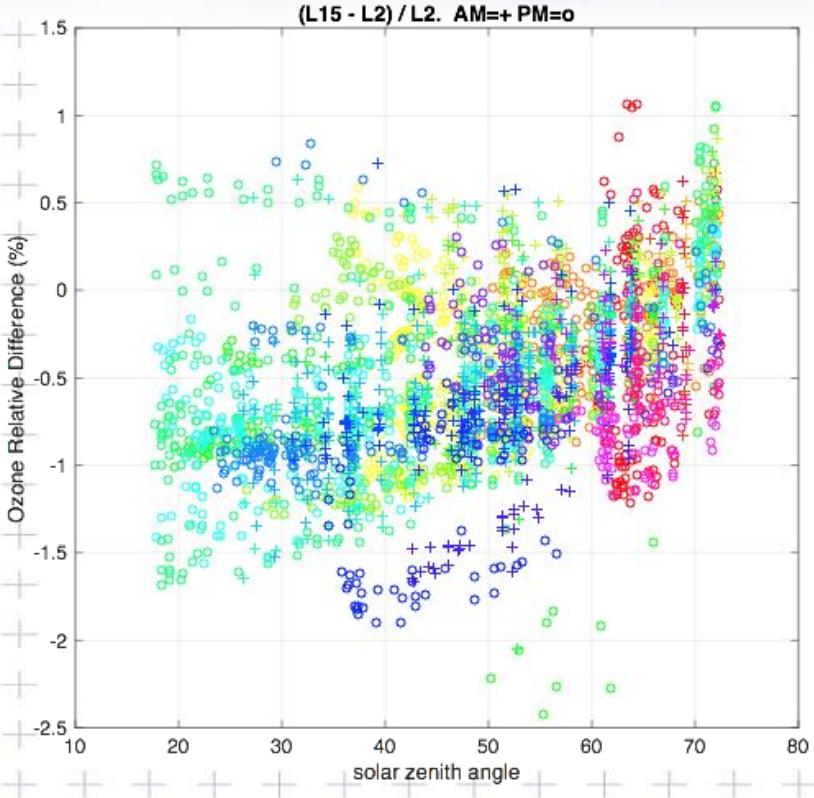

L15 vs L2
500
450
400
350
300
250
200
y=0.994241 x+ 3.550704 r=0.997879
200
250
300
350
400
450
500

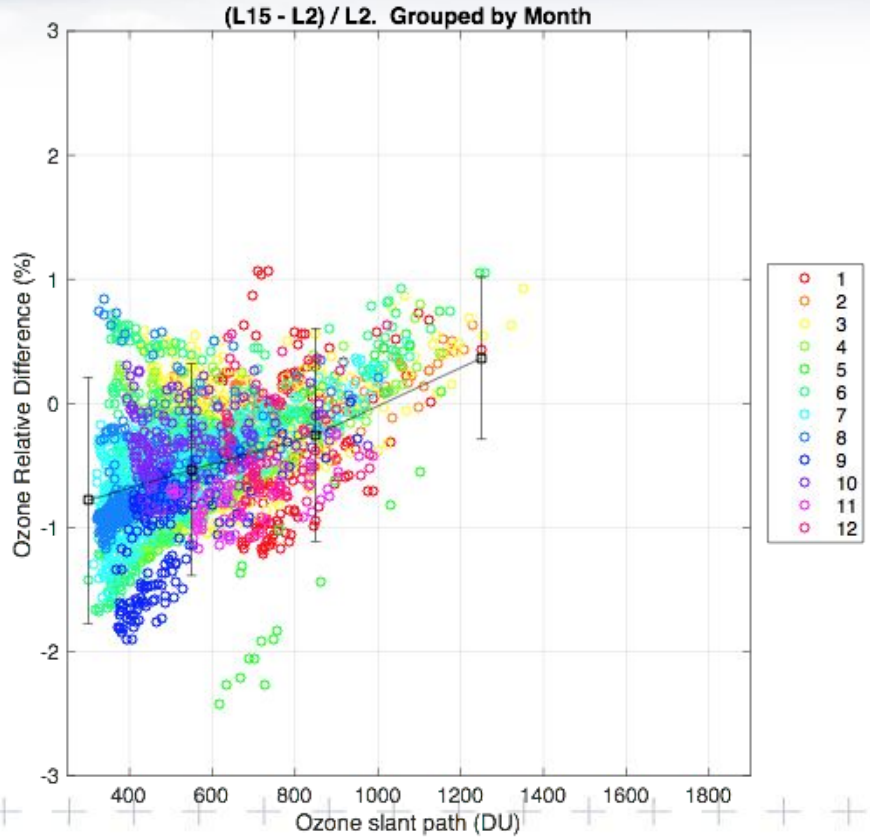

ratio %L15 vs L2
1
0.5
0
-0.5
-1
-1.5
-2
2015

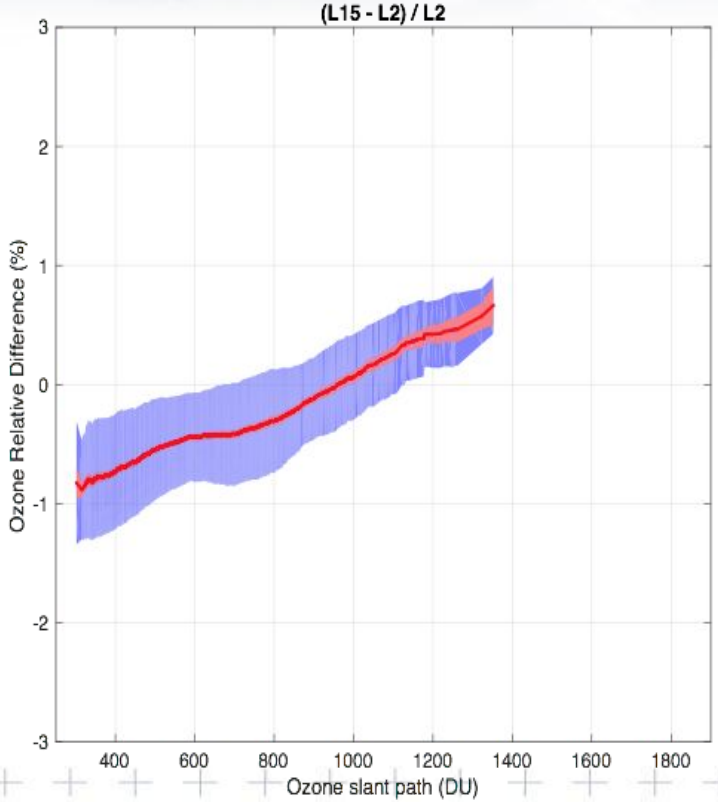

dif L15 - L2
4
2
0
-2
-4
-6
-8
2015


difference vs time difference (min)
4
2
0
-2
-4
-6
-8
0
0.02
0.04
0.06
min


(L15-L2) / L2 : #L2 by day
mean
se
mci
Ozone Relative Difference (%)
5
4
3
2
1
0
-1
-2
-3
-4
-5
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
Day


(L15 - L2) / L2. AM=+ PM=o
Ozone Relative Difference (%)
solar zenith angle
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
10
20
30
40
50
60
70
80


(L15 - L2) / L2. Grouped by Month
Ozone Relative Difference (%)
Ozone slant path (DU)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800
1
2
3
4
5
6
7
8
9
10
11
12


(L15 - L2) / L2
Ozone Relative Difference (%)
3
2
1
0
-1
-2
-3
400
600
800
1000
1200
1400
1600
1800
Ozone slant path (DU)

Filiación Completa

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