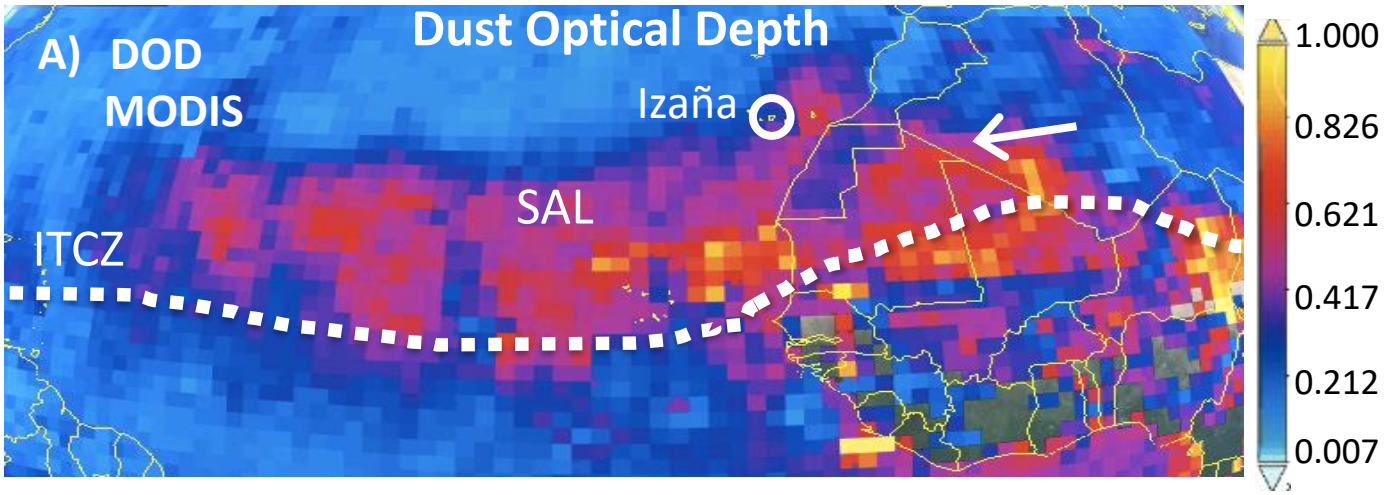
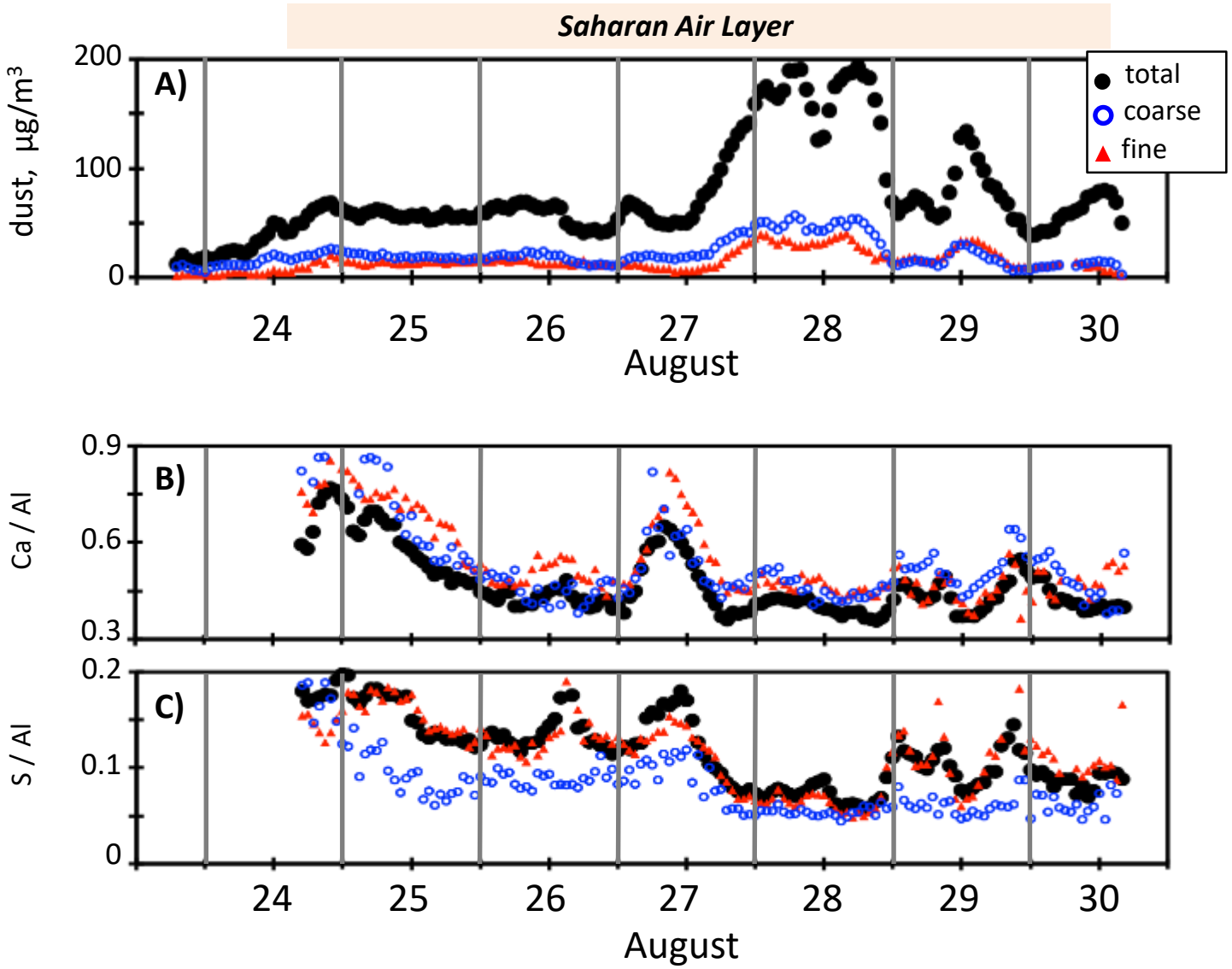
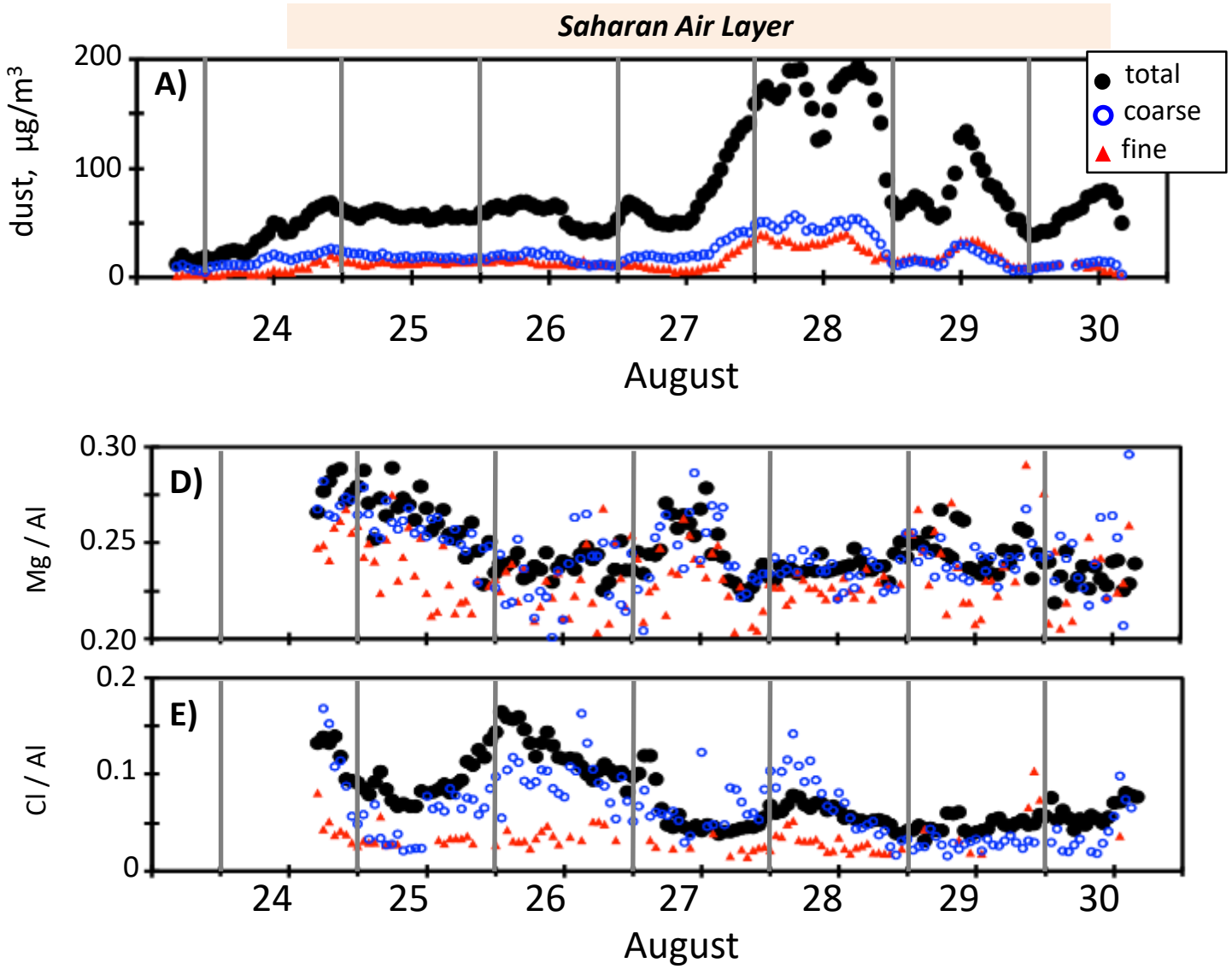
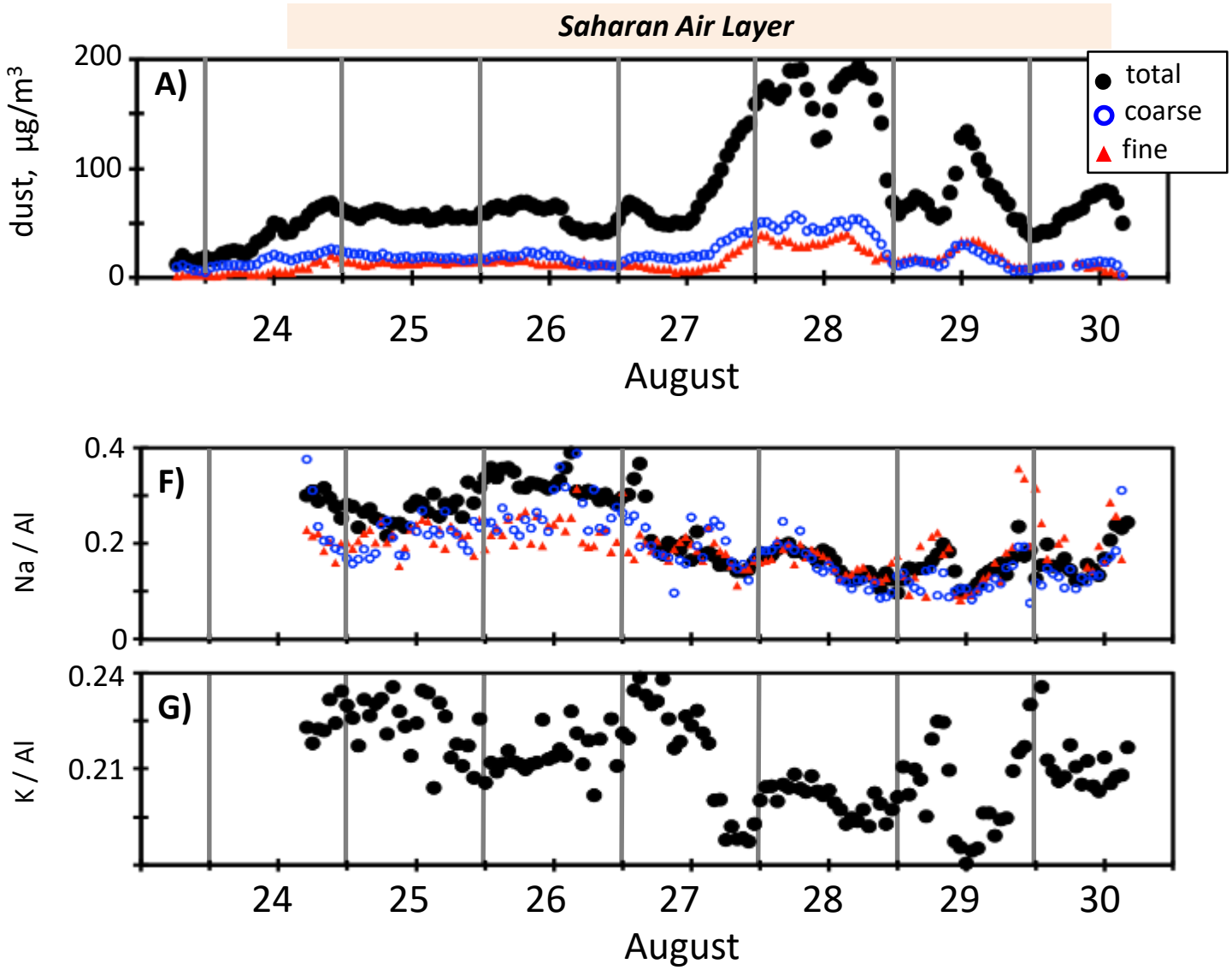
Identification of dust sources with chemical composition data

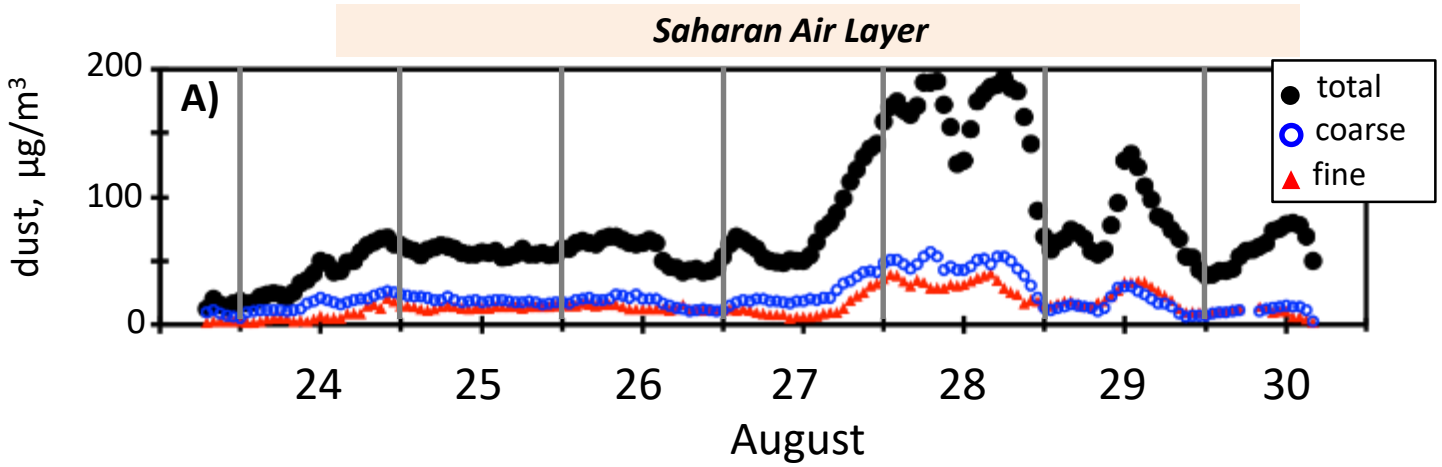
1 hour resolution measurements of dust composition

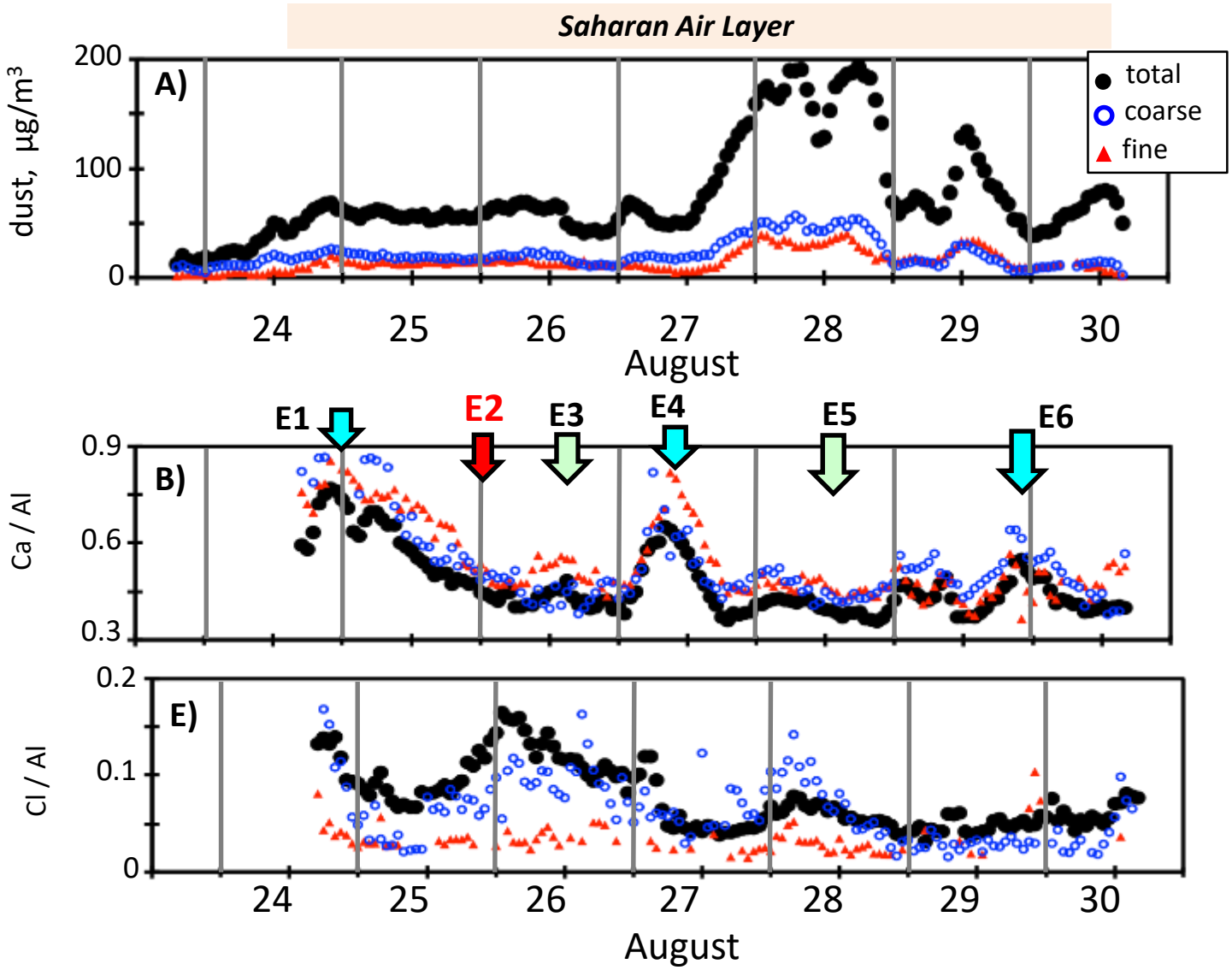


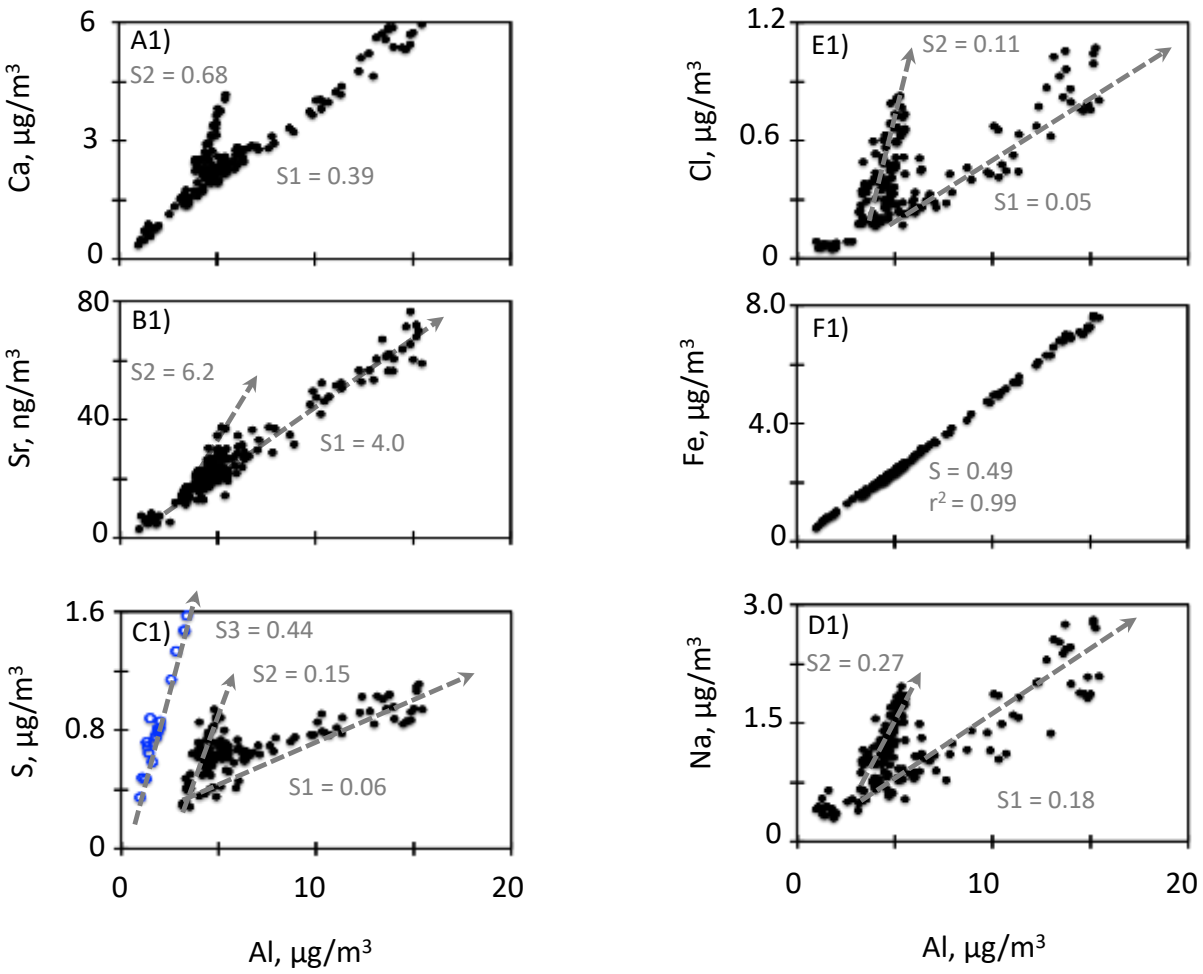

Saharan Air Layer
A)
dust, µg/m³
200
100
0
total
coarse
fine
24
25
26
27
28
29
30
August
B)
Ca / Al
0.9
0.6
0.3
C)
S / Al
0.2
0.1
0
24
25
26
27
28
29
30
August


Saharan Air Layer
A)
dust, µg/m³
200
100
0
total
coarse
fine
24
25
26
27
28
29
30
August
D)
Mg / Al
0.30
0.25
0.20
E)
Cl / Al
0.2
0.1
0
24
25
26
27
28
29
30
August


Saharan Air Layer
A)
dust, µg/m³
200
100
0
total
coarse
fine
24
25
26
27
28
29
30
August
F)
Na / Al
0.4
0.2
0
G)
K / Al
0.24
0.21
24
25
26
27
28
29
30
August


Saharan Air Layer
A)
dust, µg/m3
200
100
0
total
coarse
fine
24
25
26
27
28
29
30
August

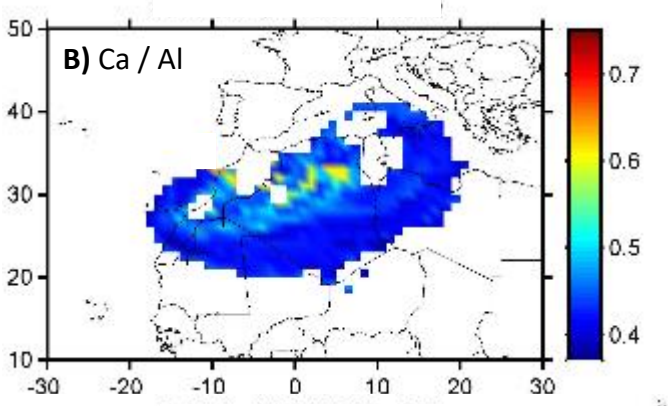

Saharan Air Layer
A)
dust, µg/m³
200
100
0
total
coarse
fine
24
25
26
27
28
29
30
August
E1
E2
E3
E4
E5
E6
B)
Ca / Al
0.9
0.6
0.3
E)
Cl / Al
0.2
0.1
0
24
25
26
27
28
29
30
August

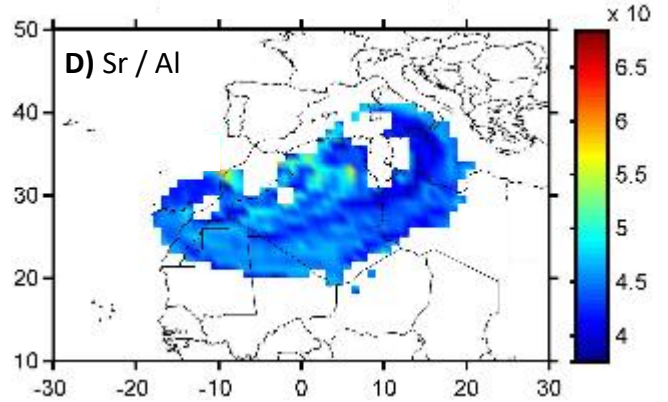

A1)
S2 = 0.68
S1 = 0.39
Ca, µg/m³
6
3
0
B1)
S2 = 6.2
S1 = 4.0
Sr, ng/m³
80
40
0
C1)
S3 = 0.44
S2 = 0.15
S1 = 0.06
S, µg/m³
1.6
0.8
0
0
10
20
Al, µg/m³
E1)
S2 = 0.11
S1 = 0.05
Cl, µg/m³
1.2
0.6
0
F1)
S = 0.49
r² = 0.99
Fe, µg/m³
8.0
4.0
0
D1)
S2 = 0.27
S1 = 0.18
Na, µg/m³
3.0
1.5
0
0
10
20
Al, µg/m³

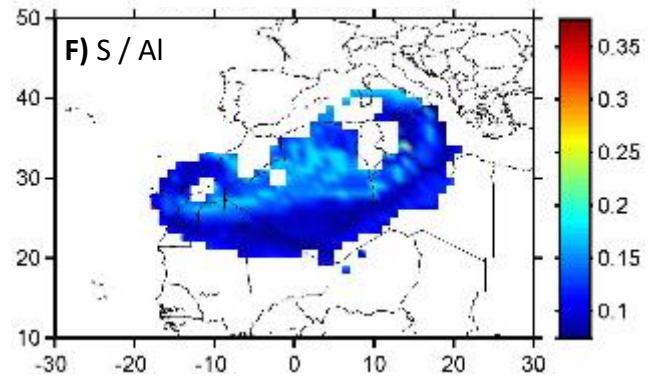
Algeria

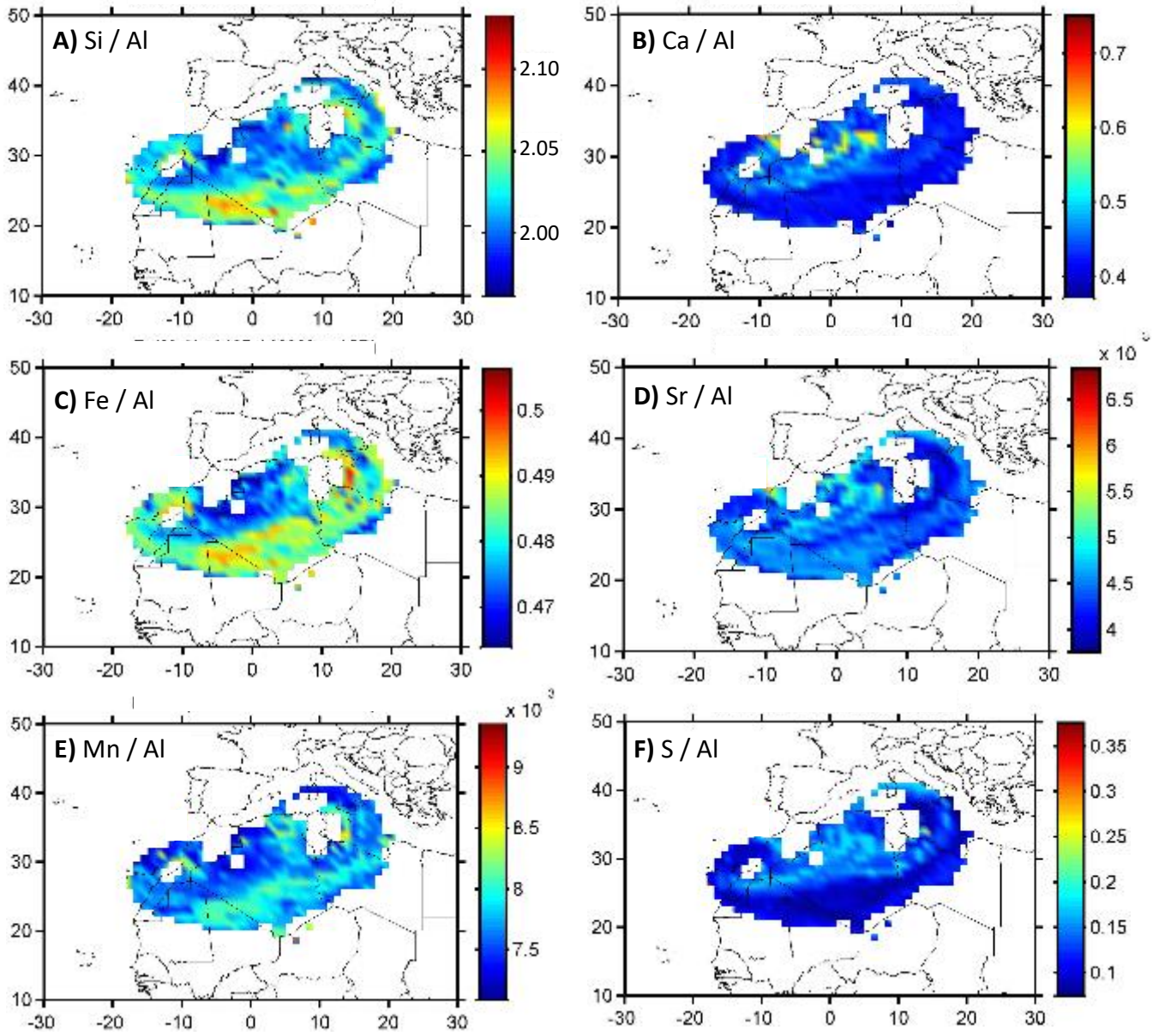
A) Ouargla basin
Alger
Tunis
Melrhir
Felrhir
Merouane
Kralla
El Jerid
Temacine
Oum El Raned
Aïn El Beïda
Hassi Messahoud
34.670°N
6.070°E

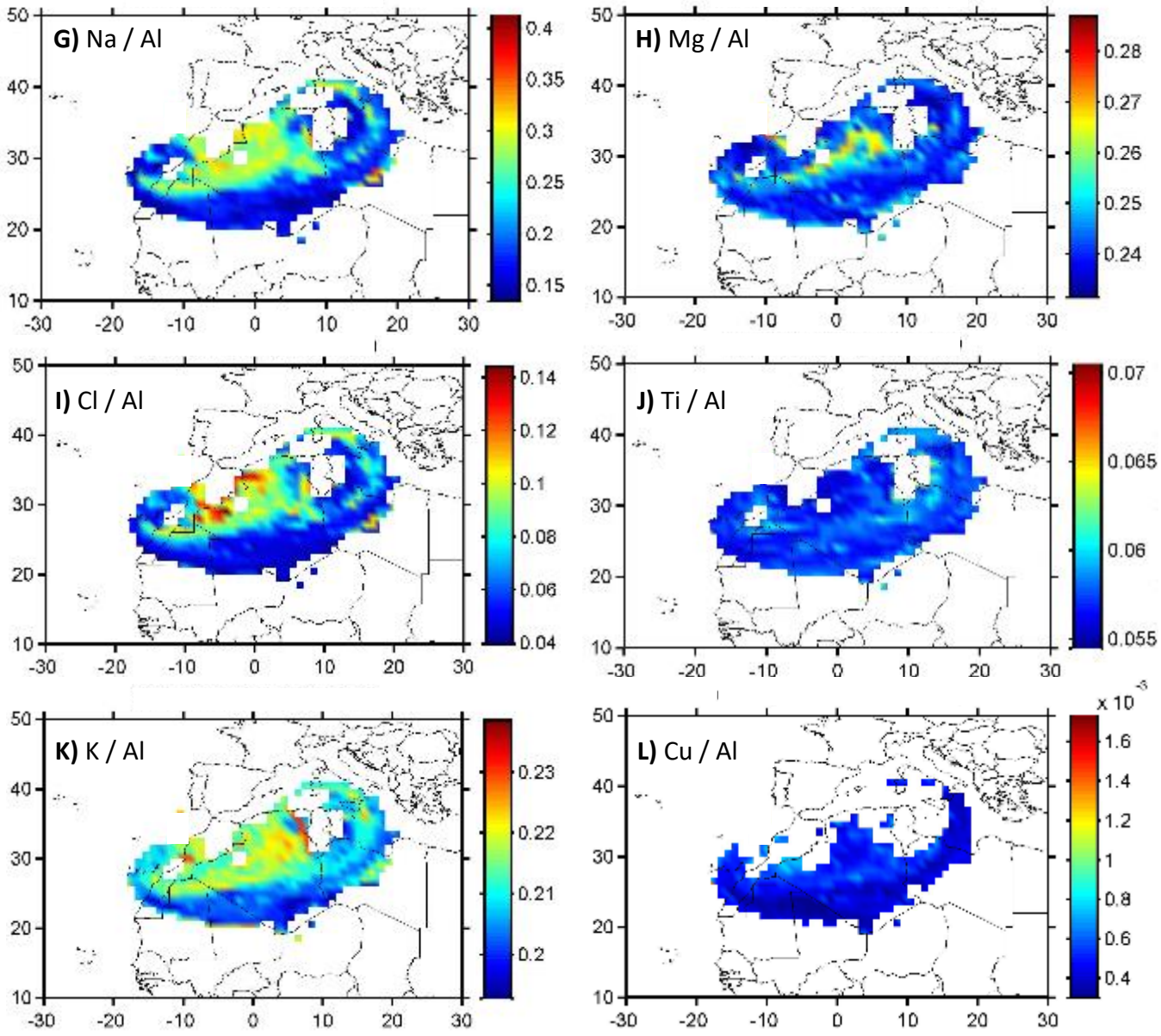
B) Chott Oum El Raned
salt


B) Ca / Al
50
40
30
20
10
-30
-20
-10
0
10
20
30
0.7
0.6
0.5
0.4


D) Sr / Al
x 10
50
40
30
20
10
-30
-20
-10
0
10
20
30
6.5
6
5.5
5
4.5
4


F) S / Al
50
40
30
20
10
-30
-20
-10
0
10
20
30
0.35
0.3
0.25
0.2
0.15
0.1


A) Si / Al
2.10
2.05
2.00
B) Ca / Al
0.7
0.6
0.5
0.4
C) Fe / Al
0.5
0.49
0.48
0.47
D) Sr / Al
x 10
6.5
6
5.5
5
4.5
4
E) Mn / Al
x 10
9
8.5
8
7.5
F) S / Al
0.35
0.3
0.25
0.2
0.15
0.1


G) Na / Al
H) Mg / Al
I) Cl / Al
J) Ti / Al
K) K / Al
L) Cu / Al
x 10⁻⁵

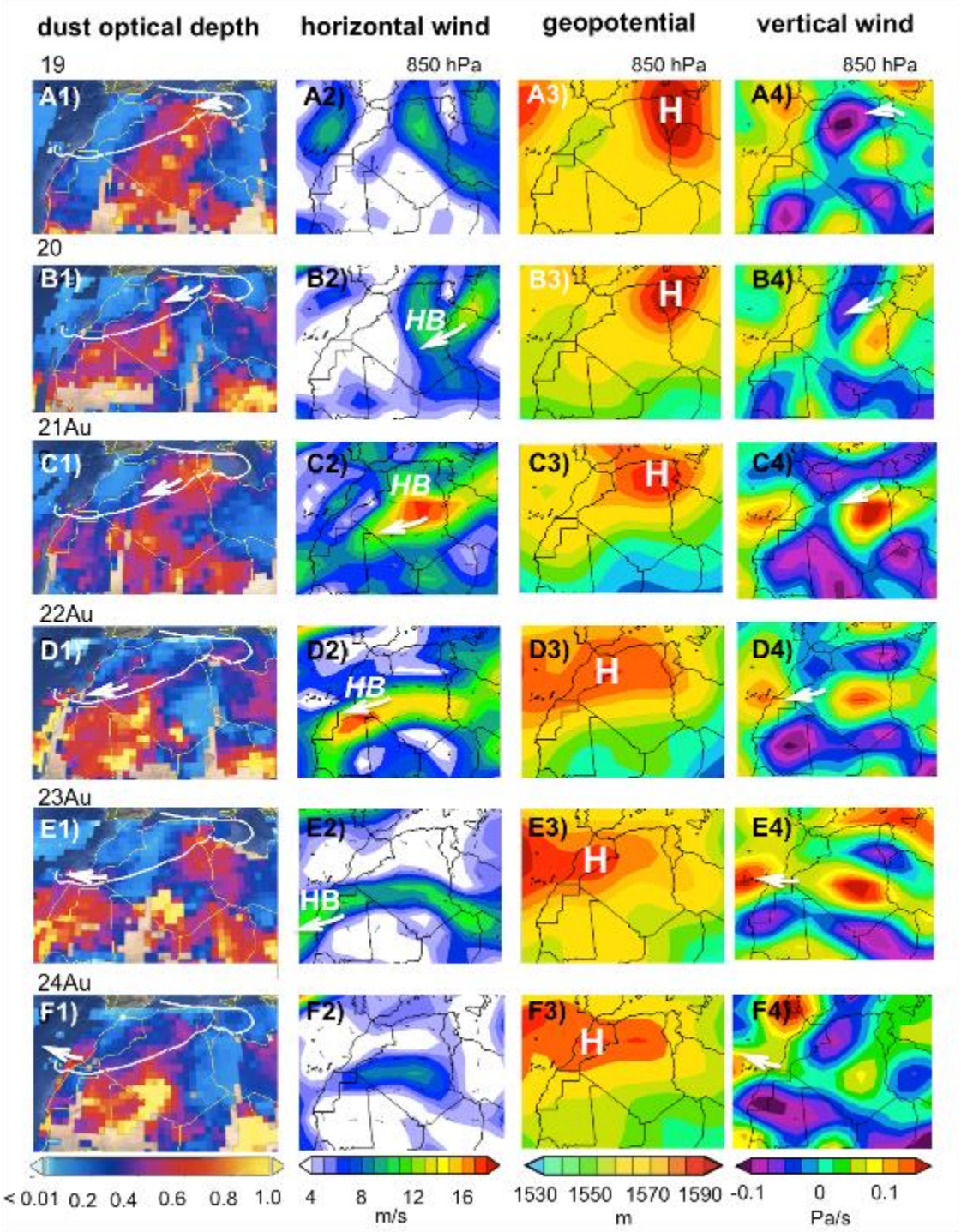


Fig.6
Event
E1