VAISALA

Loran-C Based Windfinding in Meteorology

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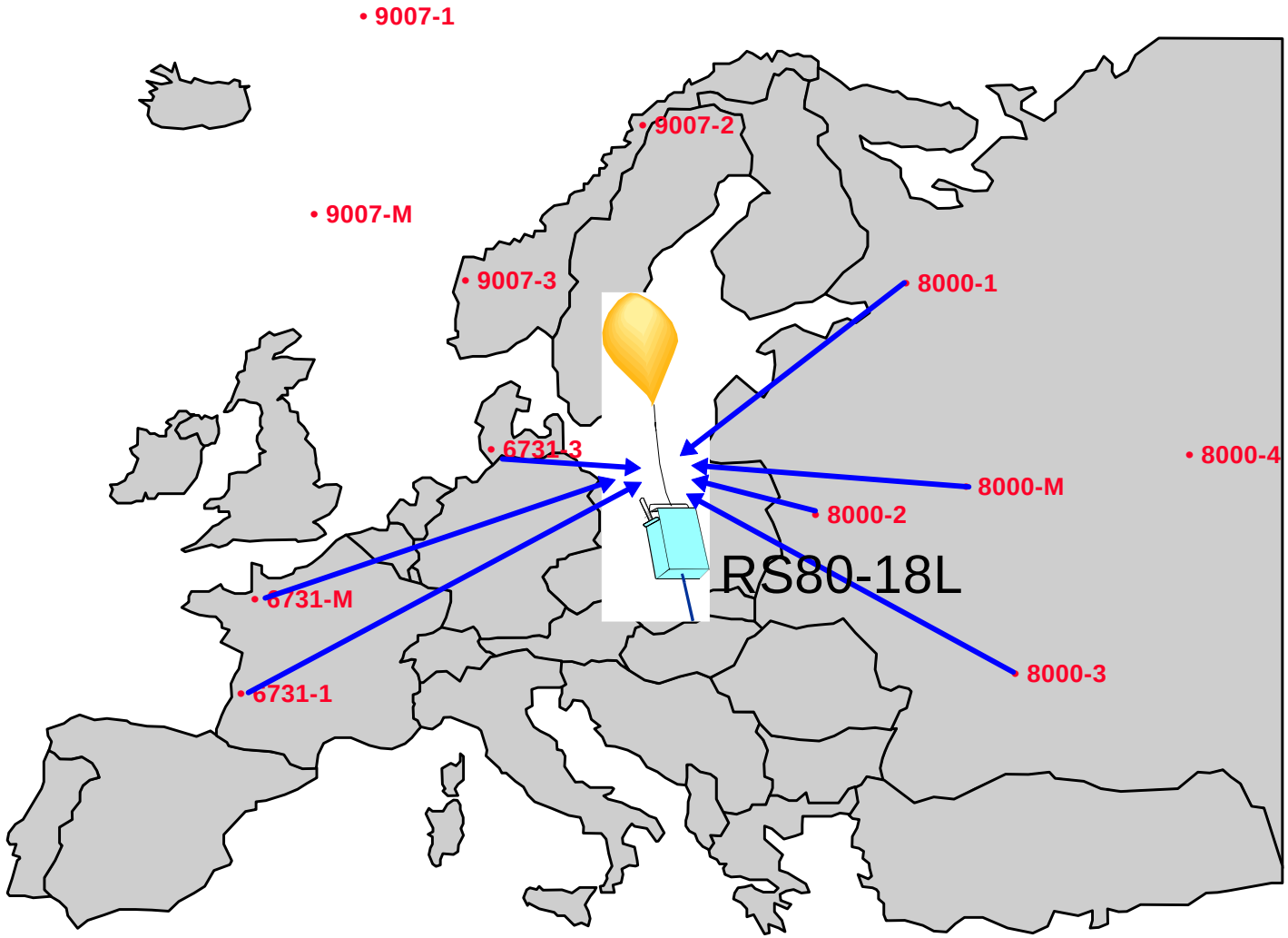
Weather balloon

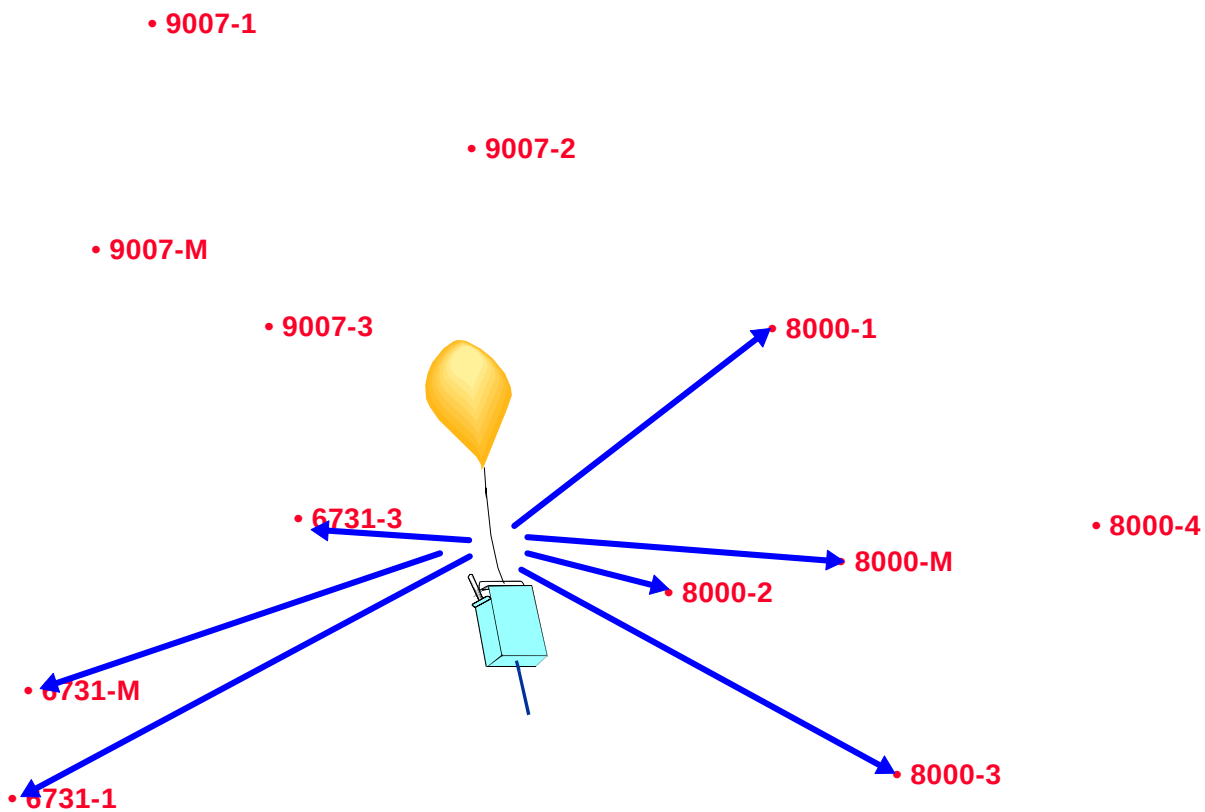
Loran-C sounding system

Radiosonde receives Loran-C signals



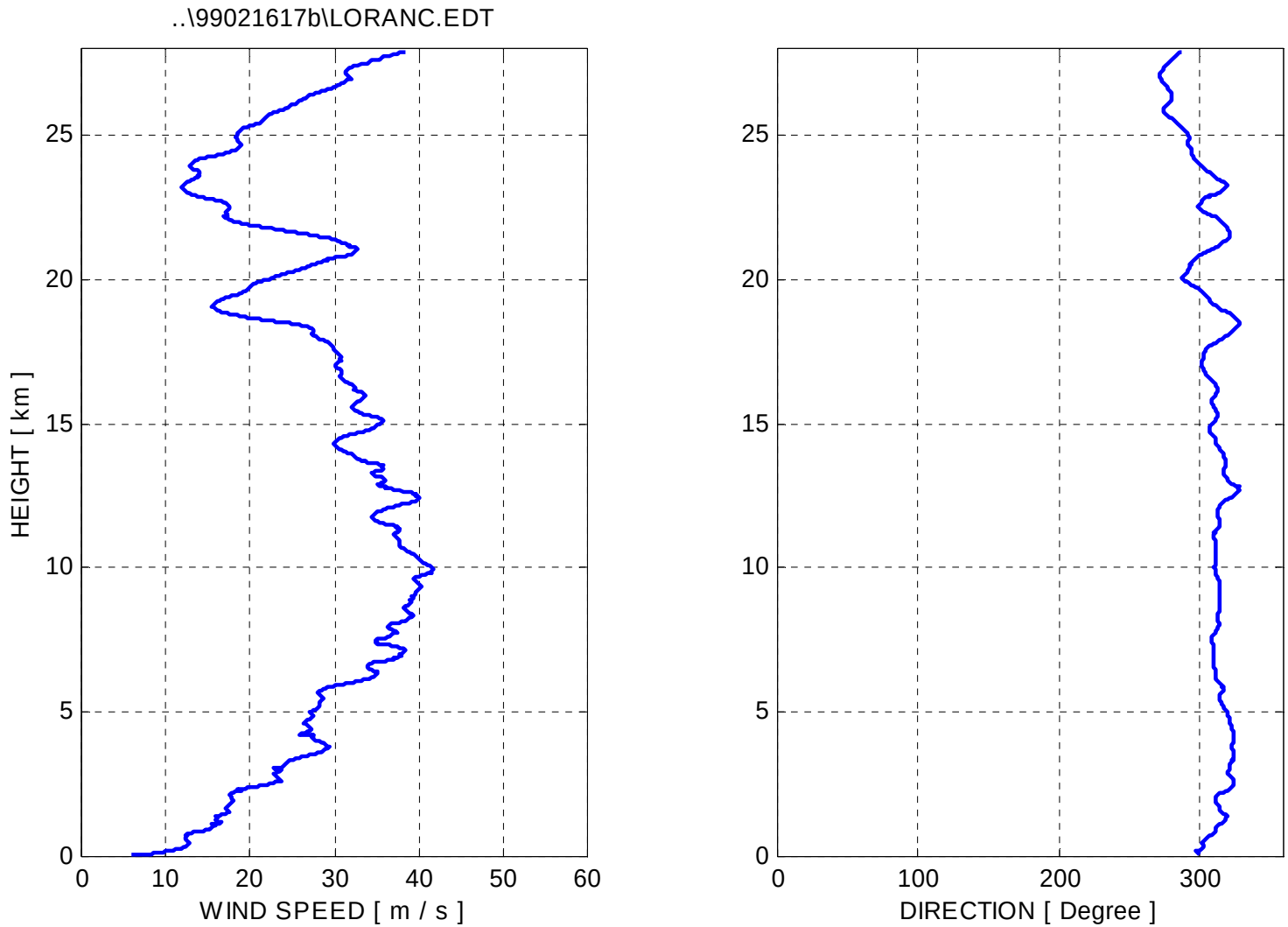
LoranEurope_01.wmf, 2000-10-17 / JJa

Velocity components

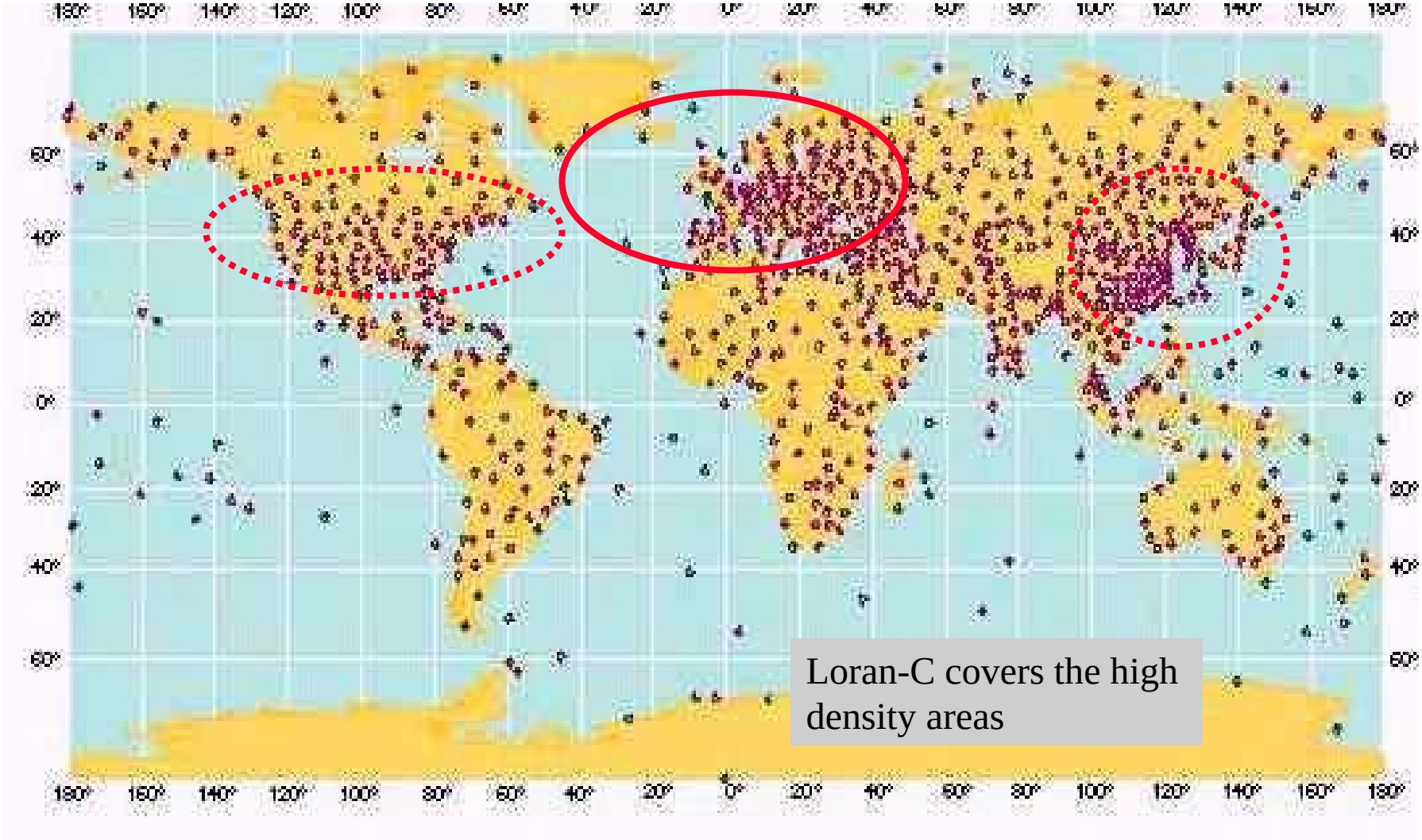


LoranVelocityComponent_01.wmf, 2000-10-17 / JJa

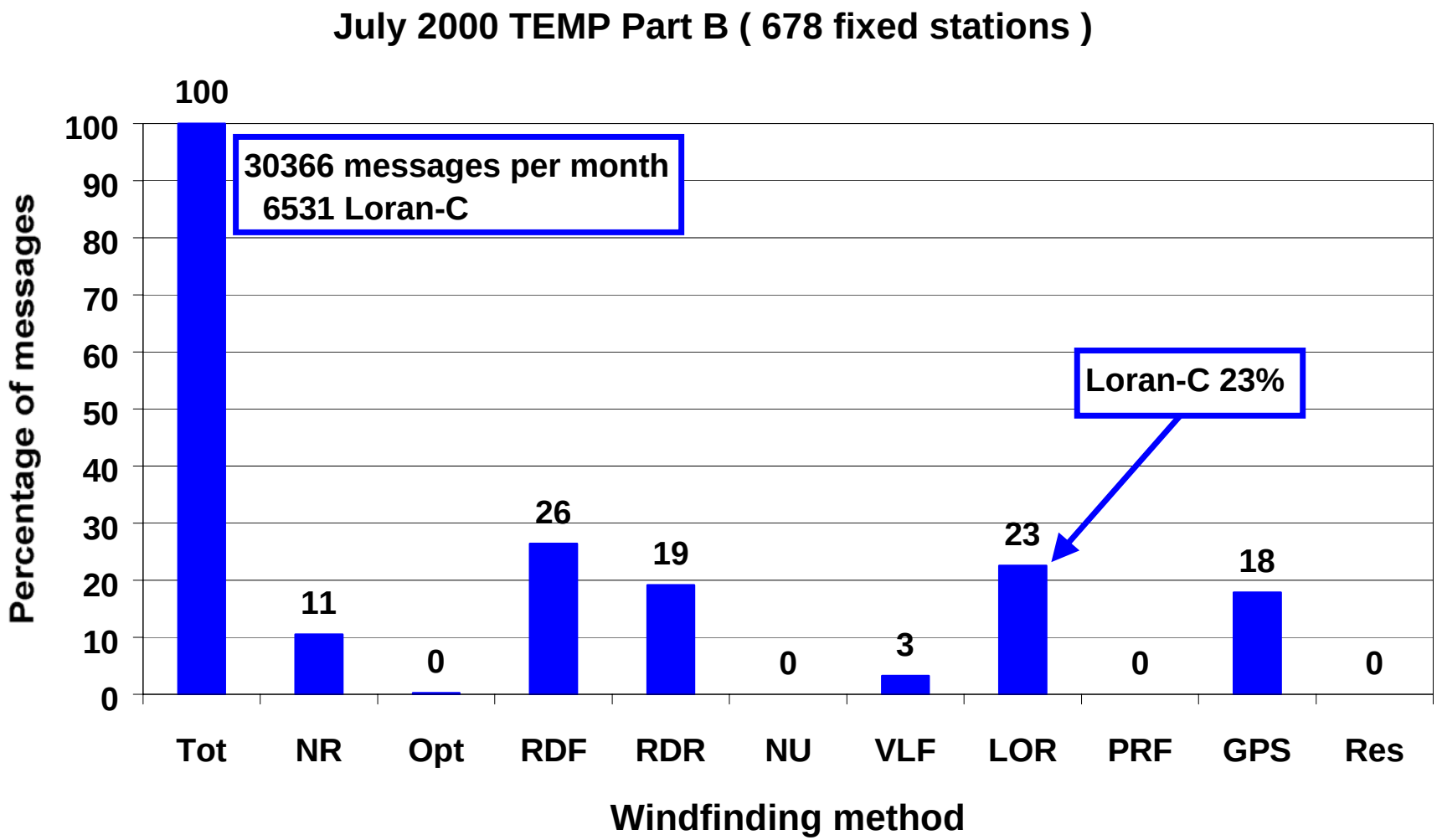
Wind profile



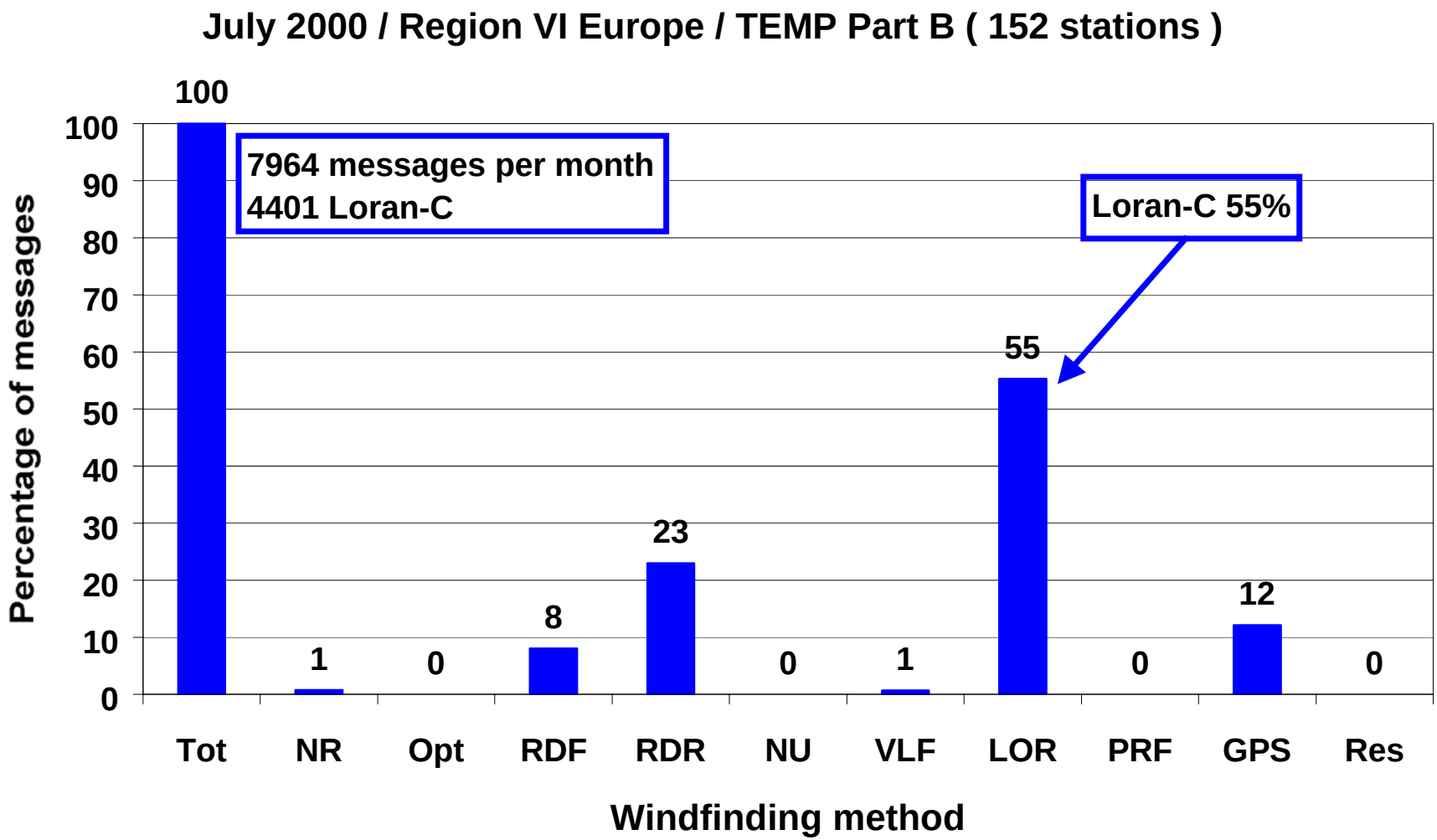
WMO Radiosonde Network



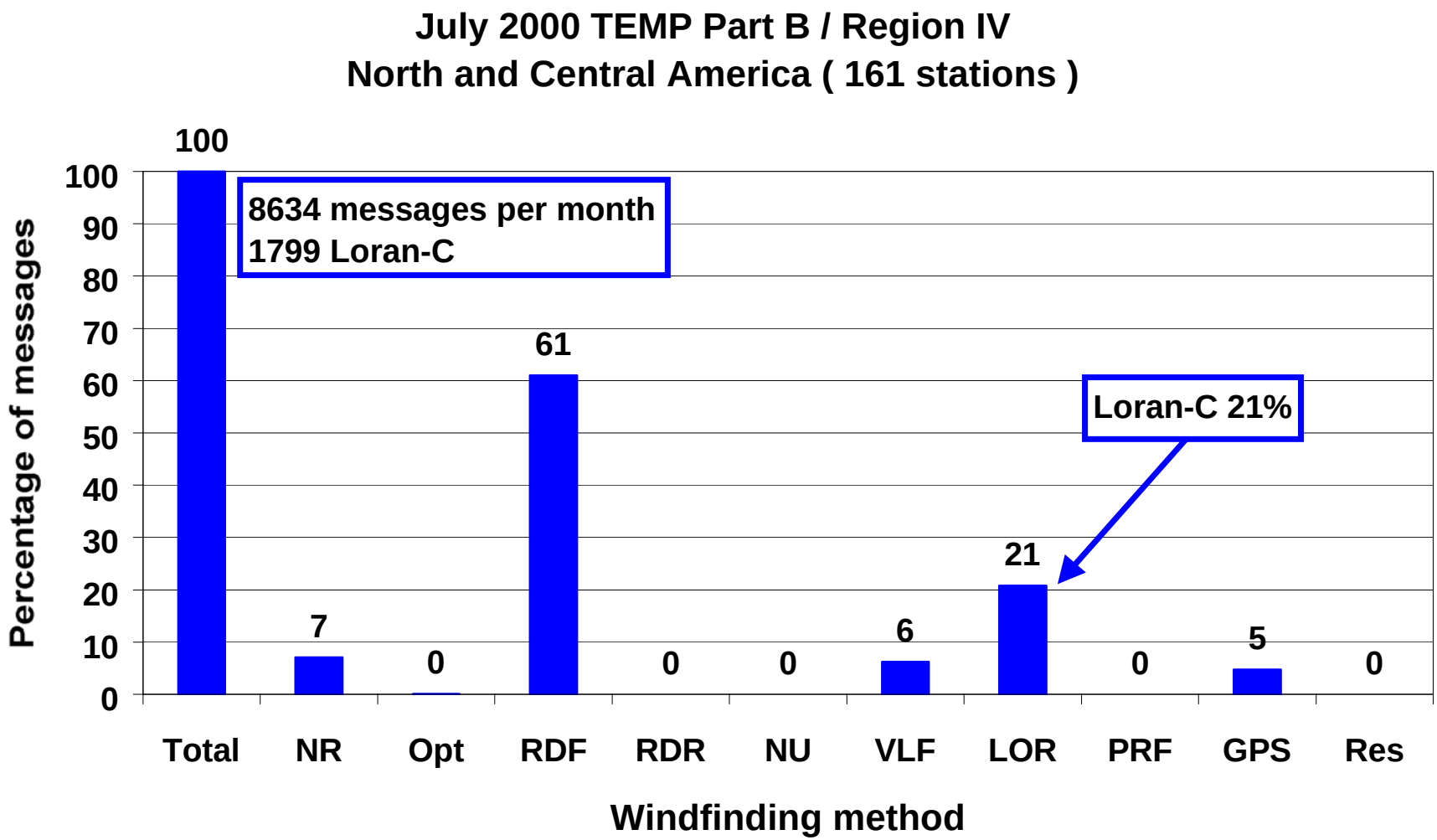
Windfinding method globally



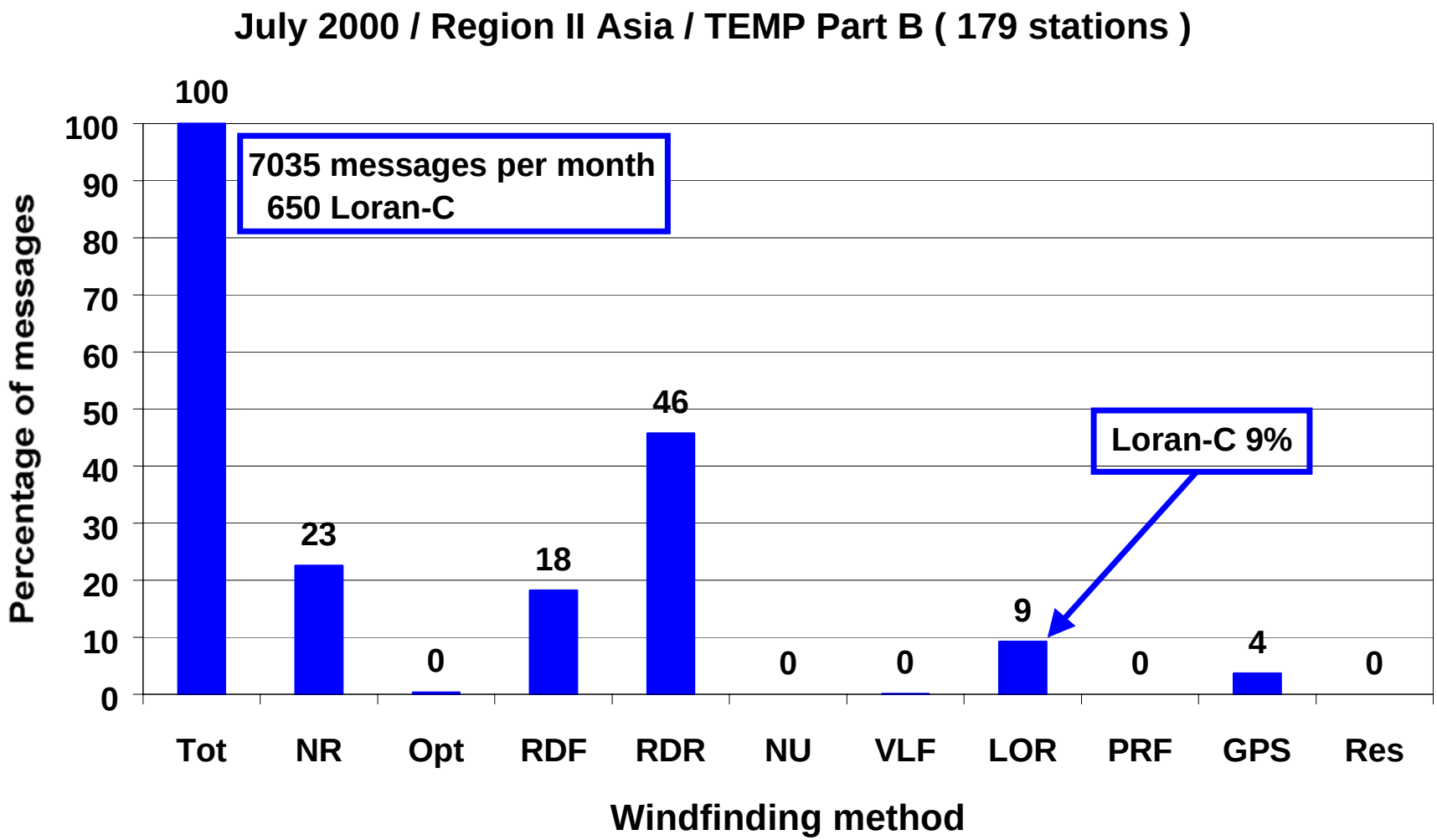
Europe


July 2000 / Region VI Europe / TEMP Part B (152 stations)
Percentage of messages
100
90
80
70
60
50
40
30
20
10
0
7964 messages per month
4401 Loran-C
Loran-C 55%
100
1
0
8
23
0
1
55
0
12
0
Tot
NR
Opt
RDF
RDR
NU
VLF
LOR
PRF
GPS
Res
Windfinding method

North and Central America



Asia


July 2000 / Region II Asia / TEMP Part B (179 stations)
Percentage of messages
100
90
80
70
60
50
40
30
20
10
0
7035 messages per month
650 Loran-C
Loran-C 9%
100
23
0
18
46
0
0
9
0
4
0
Tot
NR
Opt
RDF
RDR
NU
VLF
LOR
PRF
GPS
Res
Windfinding method

Summary

Loran-C Navigation System:

- **Widely used for tracking of weather balloons**
- **Provides excellent tracking accuracy**
- **A cost efficient method for this application**
- **Important contribution to weather warnings, prediction and climate analysis on a global scale**
- **Covers the high density observation network areas**
- **Mature and proven, yet modern technology**

Recommendation:

- **Maintain and reinforce the Loran-C navigation system**