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*Supplement of*

## **A depolarisation lidar based method for the determination of liquid-cloud microphysical properties**

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The following lidar observation periods were used in  
Figures 17, 18, B1 and B2

UV-depolarization lidar data (attenuated backscatter) as well  
as radar and aerosol measurements can be downloaded from the  
CESAR data base ([www.cesar-database.nl](http://www.cesar-database.nl))  
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=====  
YYYYMMDD | T1[UTC] | T2[UTC] | Height of ATB\_para max at T1 [km]  
=====

20110605	13.5422	13.7922	0.725995
20110605	15.7678	15.9678	0.8336425
20110607	6.4501	6.8001	0.435597
20110607	10.9042	11.2042	0.7009606
20110613	3.3231	3.6731	0.7535327
20110613	7.74468	094601	0.5812966
20110614	0.5959001	0.8959	0.3730112
20110615	20.7574	21.0574	1.344342
20110620	16.4803	16.7303	1.419445
20110622	3.5348	3.8848	1.239198
20110622	7.1381	7.4881	1.164095
20110623	0.3478	0.6978	0.7410155
20110104	18.0517	18.3517	0.6909469
20110104	20.9064	21.2064	0.4956793
20110105	0.0979	0.4479	0.4381004
20110105	1.0399	1.189	0.5657755
20110105	3.220	3.5705	0.6834366
20110108	20.994	21.2494	0.7059675
20110112	0.069	0.4193	0.8111117
20110114	3.756	4.1066	0.580796
20110114	5.679	6.0739	0.4606313
20110115	16.393	16.6593	0.8036013
20110115	17.288	17.5888	0.8636837
20110115	19.203	19.5063	1.058951
20110115	22.363	22.6623	1.121537
20110116	0.165	0.5158	1.055947
20110116	8.757	9.1077	1.314301
20110116	9.874	10.2224	1.522086
20110116	14.681	14.7981	1.657271
20110117	0.484	0.5842	1.662278
20110117	2.338	2.6818	0.453121
20110117	22.994	23.2494	0.7034641
20110123	19.456	19.7546	0.6008235
20110123	21.677	21.9797	0.5542597
20110125	2.144	2.5442	0.4406039
20110125	17.208	17.4608	1.10902
20110125	23.387	23.6837	0.9588141
20110126	14.077	14.3767	0.4701443
20110126	17.132	17.4352	1.426956
20110127	0.093	0.4437	1.36437
20110127	5.291	5.5451	0.6203502
20080516	16.86	17.01	0.7854785
20080516	22.408	22.9908	0.6553993
20080517	1.819	2.1693	0.6804145
20080517	4.563	4.9193	0.4877972

```

20080517 21.577 21.8477 1.130689
20080518 0.305 0.6553 1.11568
20080518 5.211 5.261 1.260768
20080519 5.199 5.1599 1.3133
20080519 8.70199 8.9032 1.802598
20080519 14.534 14.7846 2.096277
20080519 15.587 15.6867 2.013727
20080521 11.984 12.0354 1.748565
20080521 13.307 13.5517 1.836119
20080521 23.181 23.2381 2.072763
20080522 5.492 5.6928 2.156314
20080522 8.453 8.7013 2.348931
20080522 15.297 15.5797 2.629102
20080522 17.044 17.3914 2.716655
20080523 1.455 1.8059 3.121902
20080523 3.212 3.4132 2.226356
20080523 6.818 7.1628 3.091884
20080523 22.781 22.8581 2.649114
20080524 3.099 3.4499 3.492127
20080524 19.985 20.2785 2.771688
20080524 22.558 22.8588 2.273885
20080525 0.138 0.4889 2.058754
20080525 14.663 14.9863 0.7454541
20080526 12.024 12.3244 1.055643
20080526 15.964 16.2664 0.8805364
20080527 9.00501 9.0553 0.5028062
20080527 9.776 10.0268 0.5378276
20080529 15.325 15.6725 1.470896
20080529 20.293 20.5923 0.8605242
20080530 11.356 11.6596 0.3977423
20080531 9.2919.341501 0.4827941

```

```

=====
The following IDL/GDL code selects the proper values of the interchannel
depolarization calibration coefficient (Cr) and the cross-talk coefficient
delta^c
=====

```

```

if (thedate lt 20071231) then begin
  deltaC=0.019
  Cr=1.45
endif else begin
  if ((thedate gt 20080101) and (thedate le 20081231)) then begin
    deltaC=0.011
    Cr=0.3125
  endif else begin
    if ((thedate gt 20081230) and (thedate le 20091213)) then begin
      deltaC=0.012
      Cr=0.194
    endif else begin
      if ((thedate gt 20091213) and (thedate le 20100716)) then begin
        deltaC=0.014
        Cr=0.18
      endif else begin
        if ((thedate gt 20100716) and (thedate le 20101231)) then begin
          deltaC=0.022
          Cr=0.165
        endif else begin
          if ((thedate ge 20110101) and (thedate le 20110511)) then begin
            deltaC=0.019
            Cr=0.165
          endif else begin

```



```
function overlap,Pin,x
;
; x is altitude in km
;
A1=Pin[0]
A2=Pin[1]
zo=Pin[2]
p=Pin[3]
;
overlap=A2+(A1-A2)/(1.0+(x/zo)^p);
;
return,overlap
;
end
```