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export DISPLAY=localhost:0
export KJAGN=/Data DIR
export KJAPR=/Apriori DIR

source /usr/local/aips/LOGIN.SH ;$CDTST
aips tv=localhost:0

-----FITLD-----
task 'fitld' --- load of FITS data

datain 'KJAGN:R11330C/R11330C_S_01.FITS.1'
outname 'R11330C'
outclass 'UVDATA'
optype 'uv'
doconcat 1 --- because correlated data were divided into 2 files in this epoch
                    and observing time in both file are not overlapped <--- very important
                    *we can check these information in correlation report

clint 1/60 --- 1 sec
bchan 11: echan 118 <--- to avoid band edge effect when 'accor' is done.
digicor -1
go

datain 'KJAGN:R11330C/R11330C_S_02.FITS.1' --- we have already set 'doconcat 1'
go

-----MSORT-----
task 'most' --- sort of visibility data

getname 'N' --- N: catalog no. <--- please check using 'pcat'
outname = inname
go

*please check whether 'MSORT' data are created or not, using 'pcat'

-----INDXR-----
task 'indxr' --- make 'NX' and 'CL' tables

getname 'N' --- N: catalog no. <--- please select 'MSORT' data
cparm 0 80 1/60 0
go

*please check whether new 'NX' and 'CL' tables are created or not, using 'imh'

-----LISTR-----
task 'listr' --- indication of scan list
default
getname 'N' --- N: catalog no. <--- please select 'MSORT' data

optype 'scan'
doctr -1
outprint 'KJAGN:R11330C.SCAN'
go

*scan list file (txt) is created in 'KJAGN' dir <--- please open and check

-----PRTAN-----
task 'listr' --- indication of scan list
default
getname N --- N: catalog no. <--- please select 'MSORT' data

doctr -1
outprint 'KJAGN:R11330C.ANT'
go

*antenna info. file (txt) is created in 'KJAGN' dir <--- please open and check

-----TBIN-----
task 'tbin' --- loading TY (tsys) table of KVN and VERA
                    *These files were created by Sohn-san as each table format

defalut
getoname N --- N: catalog no. <--- please select 'MSORT' data

intext 'KJAPR:TY2_R11330C.TXT' <--- Tsys information of KVN at K-band
go

-----ANTAB-----
task 'antab' --- loading GC (gain) table of KVN and VERA

defalut
getoname N --- N: catalog no. <--- please select 'MSORT' data

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calin 'KJAPR:VERA_KVN_K.GC'
tyver -1
go
*please check whether new 'GC' ver1 and 'TY' ver1 tables are created or not, using 'imh'

-----SNPLT-----
task 'snplt' <--- indicating parameters of each table on TV

default
getname N --- N: catalog no. <--- please select 'MSORT' data

inext 'TY'
invers 1
optype 'TSYS'
nplots 8
dotv 1
go

VERA: 120 - 500 K
KVN: 80 - 220 K

-----ACCOR-----
task 'accor' <--- normalizing visibilities by auto-correlation function

default
getname N --- N: catalog no. <--- please select 'MSORT' data

solint 1/60
go

*'SN' table ver1 is created <--- check by 'imp'

-----SNPLT-----
tget snplt

inext 'SN'; invers 1; optype 'AMP'
go
* bad data point can be seen in Mizusawa, Tamna ---> flag out using task 'snedt'

-----SNEDT-----
task 'snedt'
default
getname N --- N: catalog no. <--- please select 'MSORT' data
inext 'sn'
invers 1
go
*flag out bad data point on TV ---> 'SN' ver2 is created

-----CLCAL-----
task 'clcal'
getname N --- N: catalog no. <--- please select 'MSORT' data

opcode 'cali'
interpol 'self'
snver 2; gainver 1; gainuse 2
refant -1

go
*'CL' table ver2 is created <--- please check by 'imh'

-----SNPLT-----
tget snplt

inext 'CL'; invers 2; optype 'AMP'
go

-----APCAL-----
task 'apcal' <--- calculation of SEFD using 'TY' and 'GC' table ('SN' table ver3)
default

getname N --- N: catalog no. <--- please select 'MSORT' data
tyver 1
gcver 1
snv 3
solint 1/60

go
*'SN' table ver3 is created <--- please check by 'imh'

-----SNPLT-----
tget snplt

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```

inext 'SN'; invers 3; optype 'AMP'
go

-----CLCAL-----
tget clcal

snver 3; gainver 2; gainuse 3
refant -1

go
*'CL' table ver3 is created <--- please check by 'imh'

-----SNPLT-----
tget snplt

inext 'CL'; invers 3; optype 'AMP'
go

-----BPASS-----
task 'bpass' <--- band pass calibration (amp only)
default

getname N --- N: catalog no. <--- please select 'MSORT' data
source '4C39.25"
docalib 1
gainuse 3

soltype 'L1R'
refant -1
bpassprm(1) 1 <--- using auto-correlation
bpassprm(10) 1

go

-----POSSM-----
task 'possm'
default

getname N --- N: catalog no. <--- please select 'MSORT' data
source '4C39.25"
docalib 1; gainuse 2
doband 1; bpver 1

aparm (8) 1 <--- plot total-power (auto-correlation) with BP calibration, fig13-1, fig13-2
aparm (9) 1 <--- plot several IFs
codetype 'A&P'
solint 0.5 <--- 30 sec
go

aparm (8) 2 <--- plot BP table
go

gainuse 3
solint 10/60 <--- 10 sec
aparm (8) 0 <--- plot cross-correlation
go

-----FRING-----
task 'fring' <--- calibration of 'fringe phase'
default

getname N --- N: catalog no. <--- please select 'MSORT' data
calsour '4C39.25"
docalib 1; gainuse 3
doband 1; bpver 1

refant 7 <--- reference antenna: KVN-ULSAN (*clock jump was reported in IRIKI)
search 5,6,1,2,3,4
solint 10/60
aparm 3 0 0 0 0 2 5 7 1 0
dparm 3 200 200 0

go
*'SN' ver4 is created

-----SNPLT-----
tget snplt

inext 'SN'; invers 4
optype 'dela'

```

```

go

optype 'rate'
go

optype 'phas'
go

-----SNSMO-----
task 'snsmo' <--- smoothing fringe solutions (delay, rate)
default

getname N --- N: catalog no. <--- please select 'MSORT' data

sources '4C39.25"
samptype 'MWF' <--- median window filter
bparm 0 0 0.5 0.5 0 <--- 30 min average of rate and delay
refant 7
smotype 'vlbi'
go

-----SNPLT-----
tget snplt

inext 'SN'; invers 5
optype 'dela'
go

optype 'rate'
go

-----CLCAL-----
tget clcal

interpol '2pt'; smotype 'vlbi'
snver 5; gainver 3; gainuse 4
refant 7

go
*'CL' table ver3 is created <--- please check by 'imh'

-----POSSM-----
tget possm

source '4C39.25"
docalib 1; gainuse 4
doband 1; bpver 1

solint 0.5 <--- 30 sec
aparm (8) 0 <--- plot cross-correlation

go

-----SPLIT-----
task 'split' <--- creating single source file from multi-source file (msort data)
default

getname N --- N: catalog no. <--- please select 'MSORT' data
source '4C39.25"

docalib 1; gainuse 4
doband 1; bpver 1

aparm (1) 2 <--- average of 'channels' in one IF

go
* check whether single source file ('4c39.25.split') is created or not by 'pcat'

-----FITP-----
task 'fitp' <--- uvfits (calibrated single source file) is exported for 'difmap' analysis
default
getname N --- N: catalog no. <--- please select 'SPLIT' data

dataout 'KJAGN:4C39.R11330C.FITS'
go

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