



## Virtual Columns

Virtual columns - such as RA and DEC - do not physically exist in the event file; they are defined by the WCS information attached to another column, e.g. SKY.

For example, looking at any event file:

```
unix% dmlist acisf01838N001_evt2.fits"[cols sky]" cols
-----
Columns for Table Block EVENTS
-----
ColNo  Name                Unit      Type      Range          sky coordinates
   1   sky(x,y)           pixel     Real4     0.50: 8192.50
-----
World Coord Transforms for Columns in Table Block EVENTS
-----
ColNo  Name
1:     EQPOS(RA ) = (+278.3860) +TAN[(-0.000136667)* (sky(x) - (+4096.50))]
      (DEC)  (-10.5899 )      (+0.000136667) ( (y) (+4096.50))
```

There clearly are columns named "x" and "y." Due to the presence of the "World Coord Transforms" information, you can access the virtual columns RA and DEC as well:

```
unix% dmlist acisf01838N001_evt2.fits"[cols ra,dec] [#row=1:5]" data
-----
Data for Table Block EVENTS
-----
ROW    EQPOS (RA, DEC)
-----
1 (    278.0762532107,    -10.6889779897)
2 (    278.0264043868,    -10.6477420690)
3 (    278.0274740929,    -10.6286233286)
4 (    278.4315818226,    -10.4901544415)
5 (    278.4249218528,    -10.5537226939)
```

## Dictionary Entry - CIAO 3.4

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URL:  
<http://cxc.harvard.edu/ciao3.4/dictionary/virtualcolumns.html>  
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