

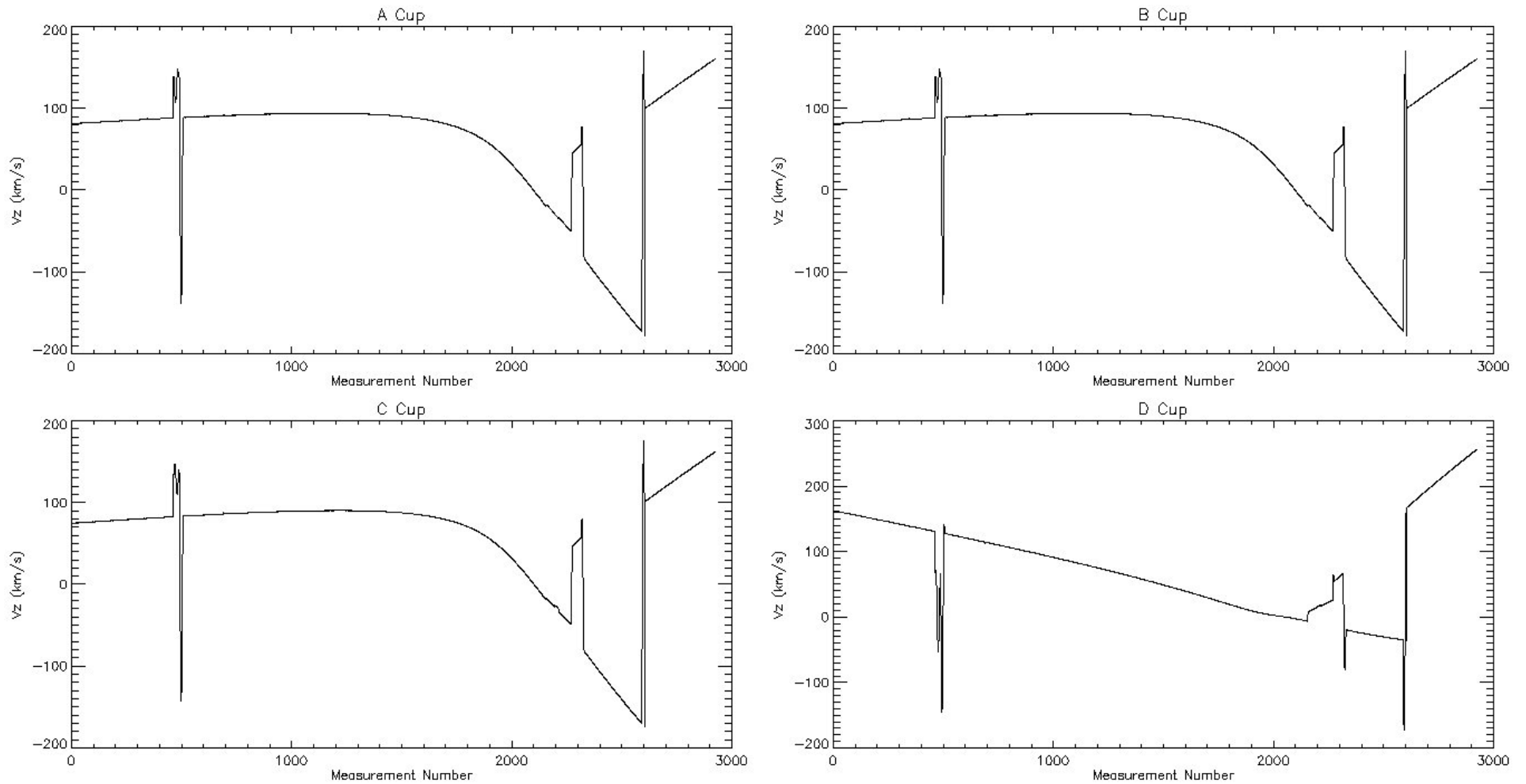
Voyager 1 PLS Cup Currents

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Getting the Flow

1. Transform System III coordinates into a non rotating version of System III (JTNR – Jupiter Tilt Non Rotating).
2. Find rotation matrix between ECL50 and JTNR.
3. Flow is corotational at a speed of $12.6 \text{ km/s} * R/RJ$ in JTNR frame. Transform to ECL50.
4. Find flux in ECL50 by subtracting S/C velocity.
5. Transform ECL50 to S/C coordinates.
6. Transform S/C to A, B, C, and D cup velocities.

Flow in the Z direction

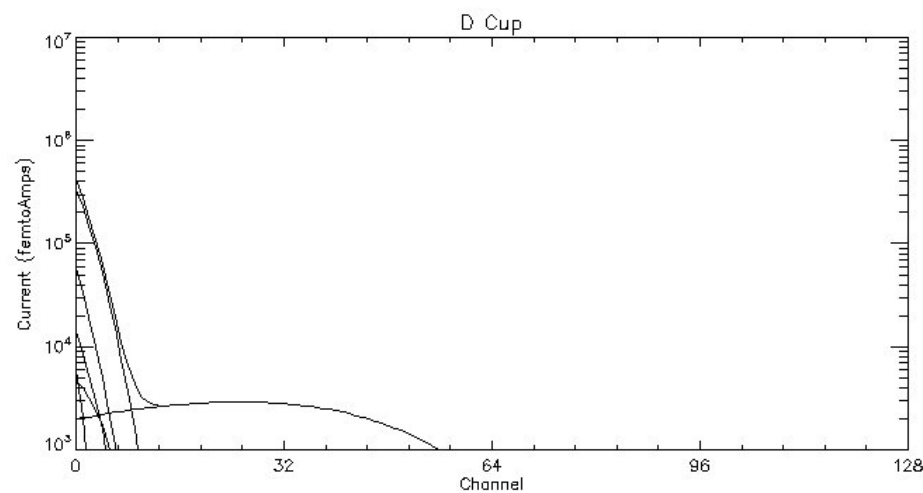
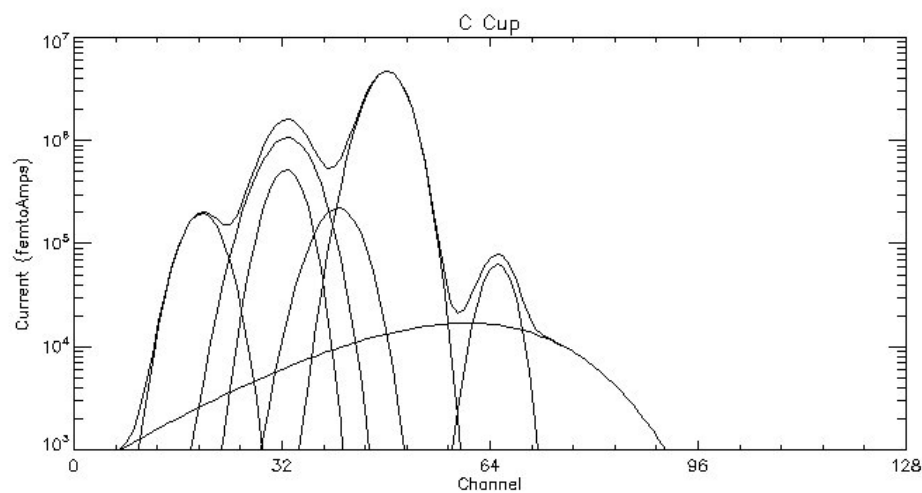
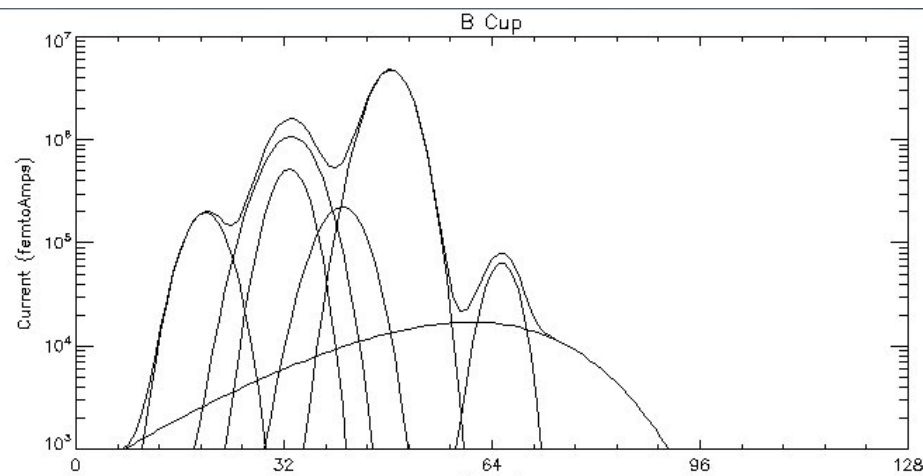
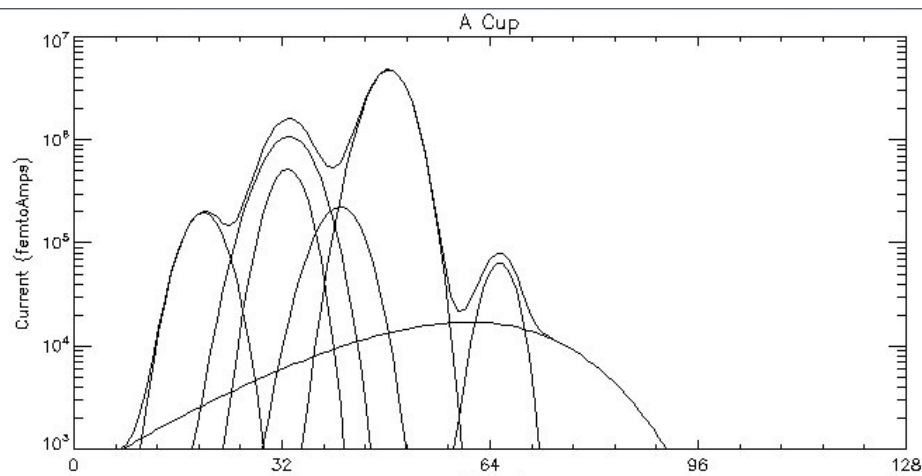


Positive z is into the cups. Measurement number is index value in v1jup.txt file

Calculation of Current

- Use a simple Maxwellian for each separate species and integrate along V_z to get the current.
 - Does not take into account shift function or grid absorption at odd angles since it ignores V_x and V_y .
- Uses numbers already determined from an earlier analysis to test validity of function.

Measurement Number 1962



Current in femtoamps and ranging from 10^3 to 10^7
1979 64 1016: 0.301 (1962 is index value in v1jup file)

Matching old Data

- It doesn't fit perfectly to the old data with the same parameters. It looks as if everything has been shifted to the right a little.
- May be due to a discrepancy in the dates on the old data, even a minute or so makes a huge difference.
- Most likely due to the use of a simpler response function and only using the z component of the flux velocity