Tether doc notes PhL 1.22.17

I got a 1997 3rd edition handbook copy with relatively clean graphics and am just browsing it. Today is of course 20 years later, I don't see an intervening 4th edition.

The handbook opens with a review of tether actions that have already happened. Tethers from a few hundred meters to up to 20 km have been involved. Activity in the 1990's in the Space Shuttle era.

Section 2.0 is a long list of "proposed" tether flights. (again, 1997)

Section 3.0 is on tether "applications", which I found interesting.

power generation using conducting tethers in magnetic field and/or plasma
thrust generation
use as an antenna
gravity wave experiments
tool to lifting and moving things around in space
tool for stabilizing objects in space.
reboosting satellites
tether material (Kevlar) and micrometeorite damage rate
to provide specific gravity strength environments.

Section 4.0 is "tether fundamentals" starting page 118 out of 274. I will pay more attention here.

4.5 REFERENCES

1. Applications of Tethers in Space, Workshop, Williamsburg, Virginia, 15-17 June 1983, Workshop Proceedings, NASA CP-2364 (Vol. 1), NASA CP-2365 (Vol. 2), March 1985.

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3. Arnold, D. A., "The Behavior of Long Tethers in Space," Journal of the Astronuatical Sciences, Vol. 35, No. 1, p. 3-18, January-March, 1987.

4. Applications of Tethers in Space, Workshop, Venice, Italy, 15-17 October 1985, Workshop Proceedings, NASA CP-2422 (Executive Summary, Vol. 1, Vol. 2), 1986.

5. Carroll, J. A., Guidebook for Analysis of Tether Applications, Contract RH4-394049, Martin Marietta Corporation, Feb. 1985.

6. Pearson, J., "Anchored Lunar Satellites for Cislunar Transportation and Communication," Journal of the Astronautical Sciences, Vol. 27, No. 1, p. 39-62, Jan.-Mar. 1979.

7. Lorenzini, E. C., "Novel Tether-Connected Two-Dimensional Structures for Low Earth Orbits," Journal of the Astronautical Sciences, Vol. 36, No. 4, p. 389-405, Oct.-Dec. 1988.

8. Greenwood, D. T., Principles of Dynamics, Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1965.

9. Tiesenhausen, G. von, ed., "The Roles of Tethers on Space Station," NASA-TM-86519, NASA/MSFC, Oct. 1985.

10. McCoy, J. E., "Plasma Motor/Generator Reference System Designs for Power and Propulsion," AAS 86-229, Int. Conf. 1986.

11. Grossi, M. D., "Spaceborne Long Vertical Wire as a Self-Powered ULF/ELF Radiator," IEEE Journal of Oceanic Engineering, Vol. OE-9, No. 3, p. 211-213, July 1984.

I browsed it all, not much relevant to my stuff.

Section 5.0 tether data

Lots of stuff, mention of Arnold's equations but they include $\ddot{r}$ and do not match mine.

Section 6.0 Space Science and Tethers

There are lots of tether papers, might be nice to see histogram versus date!
I am done with this review.

found a recent history from China, added a ref.

Not sure how I will wedge in tether interest stuff.