

TITLE : SPACE DEBRIS CLEARANCE...JUST A TETHER AWAY...

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TEXT:

This creative investigation explores the problem of space debris in the near earth environment. One of the best ways to solve the problem of space debris is to drag back the deployed stages after fuel usage into the atmosphere and burn it up. **A long conducting tether (a long wire)** made of **Al or Cu (with coating of atomic oxygen resistant polymer)** is bolted onto the satellite during its construction ranging a few kilometers in length. Once launched and operational, the device is dormant, waking up periodically to check the status of the satellite and to listen for activation commands.

When the command for the various stages of the deployment system is received the tether is deployed. Hence the respective stage will be free along with the tether. Now the **electrons in the ionosphere** pass through the tether at anode side and exit out at cathode closing the circuit.

To keep the tether in tact a counter mass is attached at its end. **The moving conductor (i.e. tether) under the earth's magnetic field** produces a **force towards the earth pulling** it down along with the debris in the opposite direction of its movement to the atmosphere and hence eventually burning it up and thereby solving the problem of the debris accumulation.

One of the other advantages is that if the solar panels could bring up enough electric energy to produce a current in the direction opposite to the induced current then a **propellant free boosting** for the satellite can be achieved in the direction needed in the case of placing satellite in GEO and LEO if attached to final stage satellite. It can also produce enough current to run the **man made research facilities**.