Millennium Meteor Fireworks Project

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In six years we will enter the next millennium; wouldn't it be great if we had beautiful international fireworks displays celebrating humanity's entry into the year 2000 ? The Millennium Meteor Fireworks Project (MMFP) is being organized to make this dream a reality. It is possible to use now-obsolete ballistic missiles to generate very large and spectacular world-wide displays of artificial meteors, at a cost similar to that now spent on ordinary fireworks displays.

Each MMFP ballistic missile could carry ten thousand to hundreds of thousands of artificial meteors, each one of which would make a meteor trail much brighter than most natural meteors.

The average 'shooting star' meteor with the same brightness as the brightest stars weighs about 1 gram when it starts to enter the earth's atmosphere. The 'fireworks' artificial meteors should be at least 10 times as bright, so each artificial meteor could have a weight of 10 grams. This means that an ICBM could carry several hundred thousand, enough to make a very spectacular display. Even more spectacular artificial meteors would result from higher weights like 50 or 100 grams. There is a tradeoff here between the number of artificial meteors and the brightness of each one. A range of sizes from small to large may be best.

Ballistic missiles have throw weights (amount of payload they can deliver on target) ranging from hundreds of pounds for smaller missiles up to many thousands of pounds for ICBMs like the Russian SS-18 and the American MX. The expensive parts of the missiles - rocket engines, guidance computers, and control systems - are already paid for (your tax dollars at work !). All that is needed is to replace the nuclear warheads with packages of inexpensive artificial meteors.

When a MMFP ballistic missile final stage finishes its boost phase and passes beyond the atmosphere into space, small chemical explosions would be used to disperse its payload of artificial meteors into a cloud about the size of a city; the cloud would be designed to be about 5 to 10 miles in diameter when it re-enters the atmosphere. This cloud of objects would produce tens to hundreds of thousands of very bright artificial meteors, all appearing in a period of tens of seconds over a place whose location can be selected with an accuracy better than 1/2 mile or so. The size of the cloud would determine the 'density' of the display; it would not be difficult to create a cloud which would fill a major part of the night sky. Because of the height at which the artificial meteors would

start to glow, the display would be visible anywhere within a circle of at least one hundred miles around 'ground zero.'

Television pictures of Scud missile re-entries during the Gulf War show that even short-range smaller throw weight ballistic missiles can produce 'artificial meteor' effects.

Artificial meteors could produce colored trails as they re-enter the atmosphere. If made out of the proper elements, many colors could be generated: blue (copper), red (strontium), green (barium), yellow (sodium), etc. If some artificial meteors had layers of different color-generating materials they would change color as they burned up in the atmosphere. Note that artificial meteors need none of the usual star compositions to produce a spectacular display; no chemical reactions are needed - atmospheric friction provides all necessary energy. Any mass entering the atmosphere at a velocity of about 6 miles/second has potential energy 15 times greater than an equivalent weight of TNT.

The artificial meteors would have special shapes to insure that they burn up completely while well above any man-made objects like airplanes. The ideal shape would be one which stayed incandescent for as long as possible, but was guaranteed to have burned down to a fraction of a gram at a safe altitude of 10 miles or so. A shape with holes or internal cavities would probably have the right performance. It would also be interesting to make artificial meteors with aerodynamically active shapes that would perform various maneuvers as they fell.

It is also possible to have sound effects. If the artificial meteors are designed to descend farther into the atmosphere, sonic booms could be produced.

The design of the artificial meteor payload is oddly similar to that of an ordinary shell; there are a number of 'stars', a bursting charge to deploy them into a spherical shape, and the 'stars' can be colored. The difference is that an MMFP burst would be larger than an ordinary shell burst by a factor of several hundred.

This project fits the current international political climate rather well. Both we and the Russians have agreed to destroy lots of ballistic missiles of various types. What better way to verify destruction than putting on beautiful displays for the citizens who paid for the missiles ?

Millennium Meteor Fireworks might even be made to pay for themselves; the producers of films, music videos, and rock concerts could be induced to sponsor the project for publicity, or if they were given rights to films and videos of the Millennium Meteor Fireworks.

Safety would be a primary objective. Each Millennium Meteor Fireworks payload would be equipped with a radio beacon so that it could be tracked and destroyed if it strayed off course or failed to function as intended.

I welcome comments on the MMFP.

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