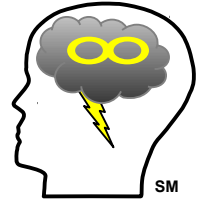


# How to scale aerial tanker water drops to 100X

## A Communication of the Intractable Studies Institute

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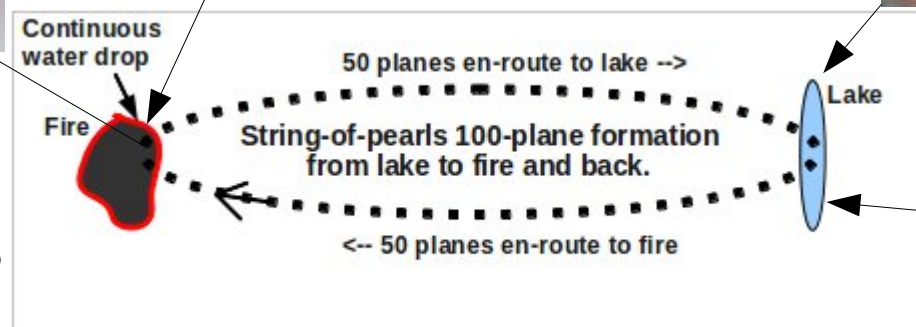
**Fighting forest fires of any size can be simpler** if a well-known solution is **scaled** very high. The flying water tanker method can be scaled very high to drop an **overwhelming** amount of water on a fire. A specific flight pattern known as the **string-of-pearls** should be used when the number of tankers is  $>50$  to provide a **continuous water drop** on the fire and to prevent air collisions of the tankers. In the example below, 7,200 gal tankers are scaled to drop **7200 gal/drop x 4 drops/minute x 60 minutes/hour = 1,728,000 gal/hour**, dwarfing the DC-10 and 747 hourly rate. Tanker models vary, a specific one below is shown in pictures with characteristics. Regardless of the tanker model, the flight formation described scales volume/time drops very high. Five Western forest fires from 2000-2003 cost directly 230M dollars, indirectly 2.9B as per [http://www.blm.gov/or/districts/roseburg/plans/collab\\_forestry/files/TrueCostOfWilfire.pdf](http://www.blm.gov/or/districts/roseburg/plans/collab_forestry/files/TrueCostOfWilfire.pdf). The cost of a large squadron can be distributed among states and nations. This fleet can be internationalized to share costs and scale the number of planes high, such as  $\frac{1}{4}$  of the fleet in Australia contributing off-season.

The Coulson-Martin Mars JRM-3 water tanker has these flight characteristics (no longer manufactured, but conceptually sound):

- Maximum speed: 221 mph, 356 km/h
- **Cruise speed: 190 mph**, 305 km/h
- **Range: 5,000 mi**, 8,000 km
- Service ceiling: 14,600 ft (4,450 m)
- **35 second water pick-up refill skimming a lake NON-STOP!**
- 7,200 US gallons of water payload (144 50-gallon drums)
- can be mixed with retardant or gel on the fly



**A water drop every 15 sec. Next water drop starts before prior finishes hitting ground.**



**Non-stop refill skim in 35 sec**

The fleet of air tankers can be based in a lake to avoid airport traffic.