Twitter Thread by Michael Elleman



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My very initial thoughts on the huge liquid fuel Missile displayed by North Korea. My estimates are likely within a plus/minus 10%, and loaded with some basic engineering assumptions. Much remains to be learned.... 1/n

The TEL has 11 axels, two more than Hwasong-15 TEL which is about 22m. These large vehicles are designed to be modular, so two additional axels, roughly 1.8 -2.0 m in length, were likely inserted, giving a new length of 25-26 m. The missile is about the same, 25-26 m long. 2/n

Diameter is more difficult to estimate from photos, but seems to be between 2.5 and 2.9 m. Resulting in a missile lift-off mass of 100-150 tonnes. Let's take the middle values, 2.7m diameter and mass of ~125 tonnes. 3/n

Further assume the missile's first stage is powered cluster of four RD-250 type chambers/engines for total sea level thrust of ~160 tonnes. This is twice that of the Hwasong-15. Lift off acceleration is then about 1.3 Gs, or thereabouts. Reasonably typical value for ICBMs. 4/n

If these estimates are close to reality, the missile, in principle, could deliver 2000 -3500 kg to any point on CONUS. This is more capable than Soviet R-16 or R-26 ICBMs that we're never deployed. These systems had a first stage diameter of 2.7m, tho 2nd stage was smaller 5/n

Further, the old Soviet design had slightly less powerful, four chamber predecessor engines to the RD-250. 6/n

If this new missile uses auxiliary steering engine on F/S the throw weight grows. But, big question centers on S/S propulsion. Perhaps a Modified single chamber RD-250 with nozzle extensions? Performance estimates will vary significantly based on S/S assumptions. End.