

ESRA Mission Assurance Project

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Mission assurance is critical in space missions



The ESRA mission is an example of a critical space mission



Solid rocket motors are used for the ESRA rocket





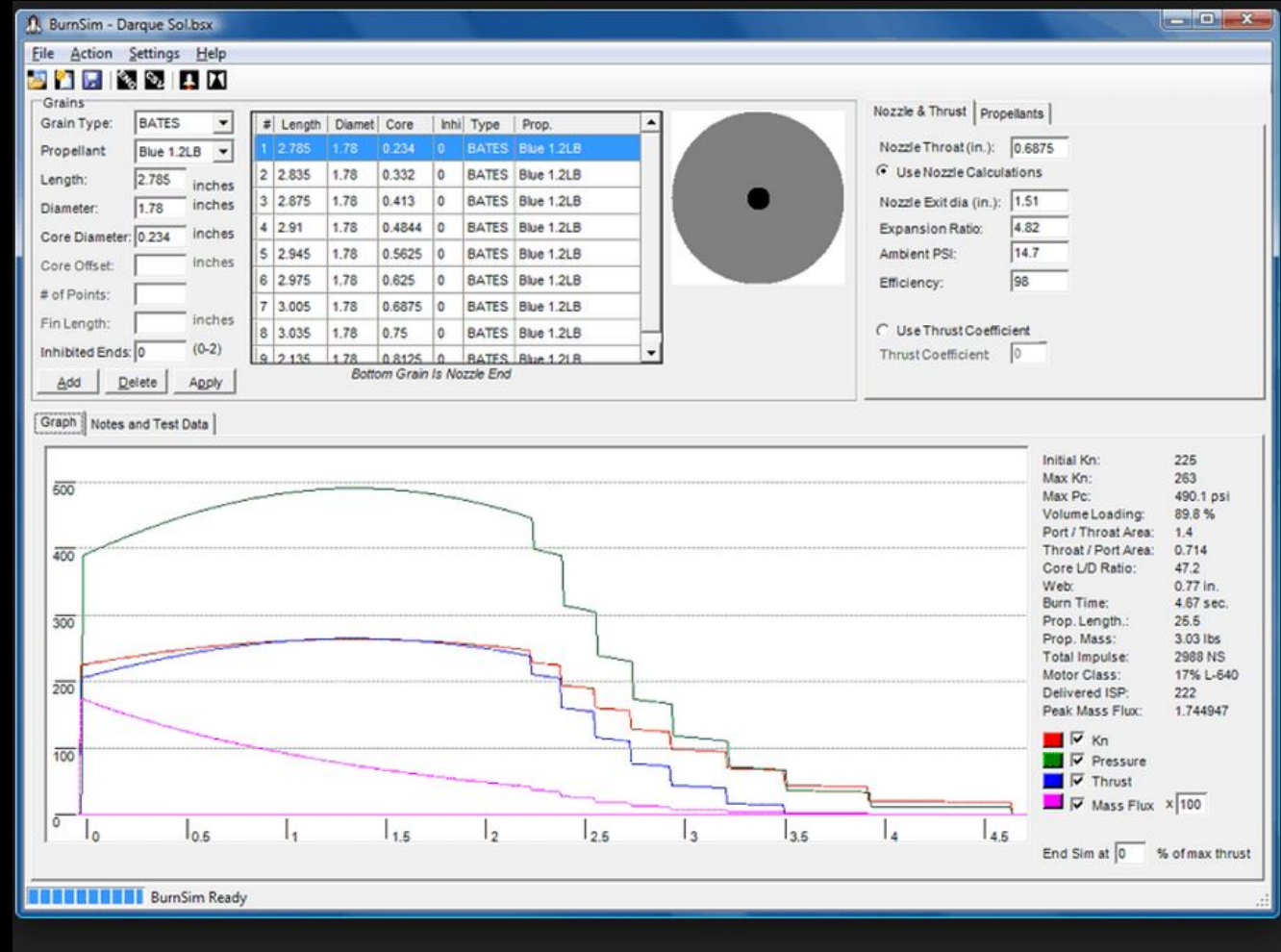
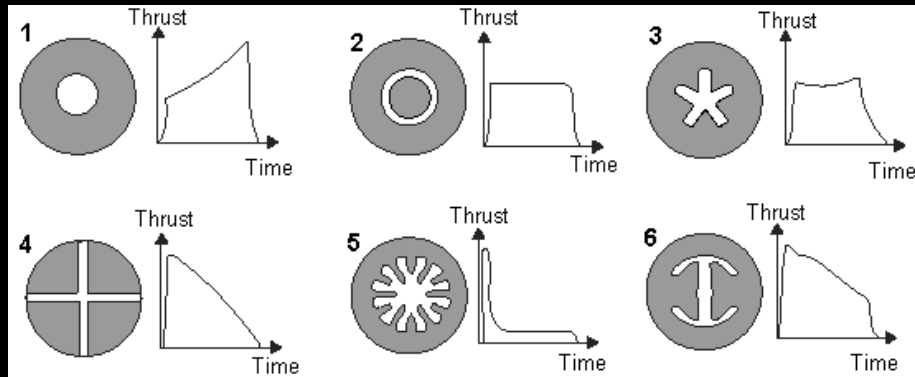
By adding resin, curative, an oxidizer, and a fuel we can create a solid rocket motor



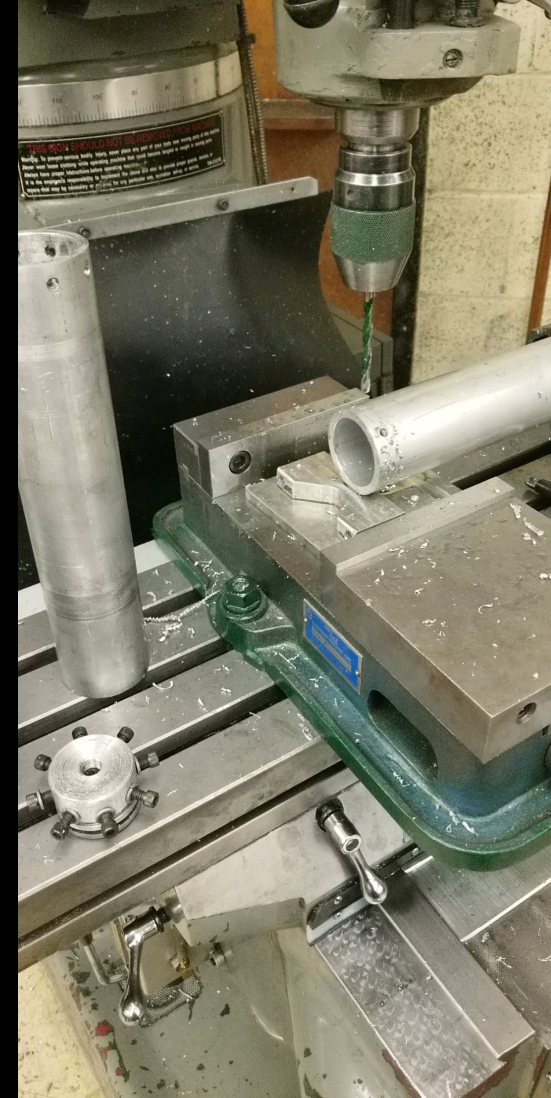
In the past, ESRA teams have recorded different results in different ambient conditions



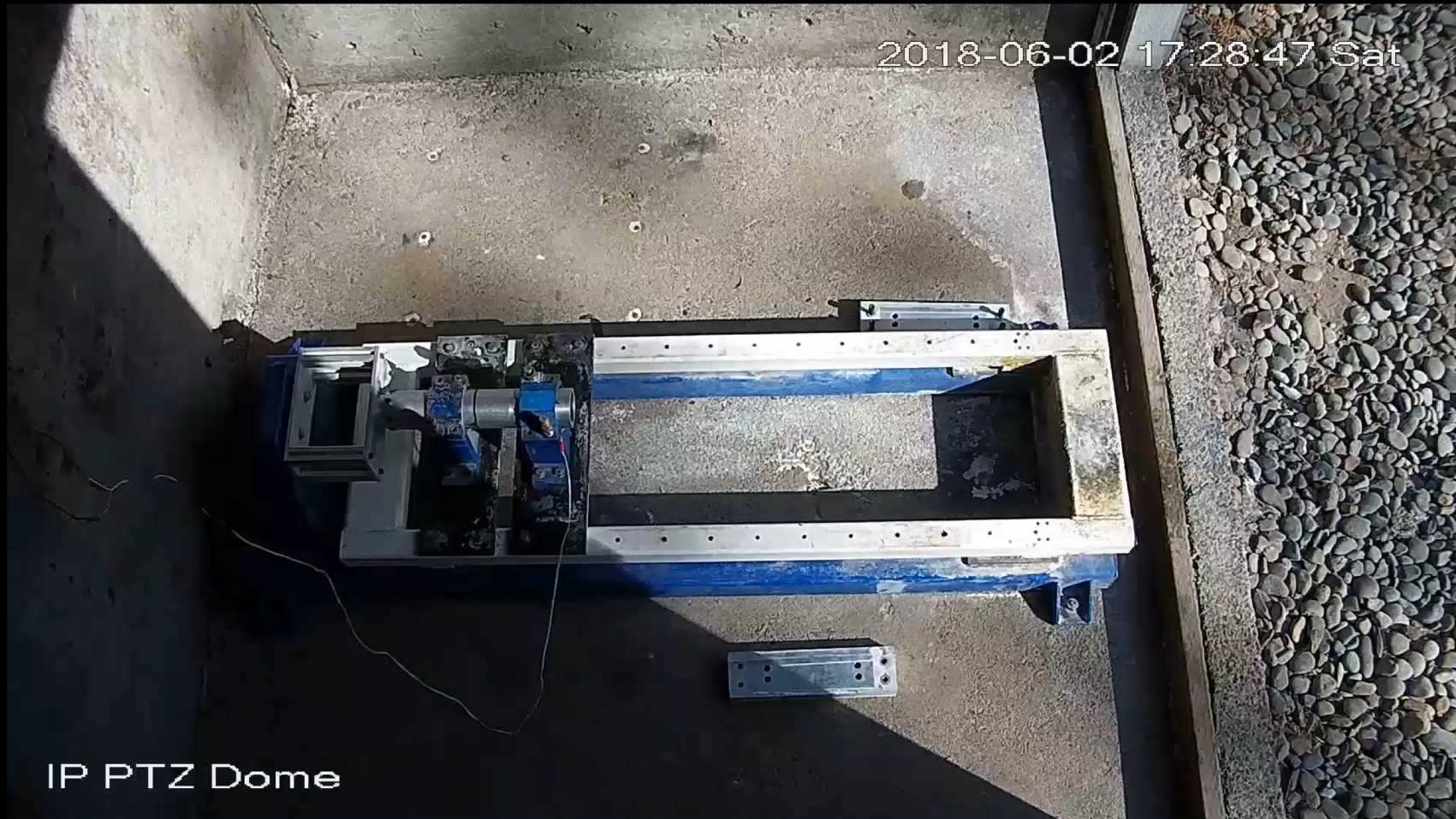
My project aimed to look at the effects of ambient temperature on solid motor performance



To study this
phenomena a
temperature controlled
box was constructed
along with sub-scaled
motors



Firing sub-scaled motors after being cyclically heat treated allows us to find trends



A quantifiable relationship must be found from this project to make solid rocket motors more predictable



Acknowledgements

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Questions?

I can try to answer them