Jordan L. Thompson

Sr. Mechanical/Thermal Engineer

jthompson@vertexaerospace.com

EDUCATION

May 2013 **M.S. Mechanical Engineering**
Virginia Polytechnic Institute, Blacksburg, VA

May 2011 **B.S. Mechanical Engineering**
Virginia Polytechnic Institute, Blacksburg, VA

EXPERIENCE

8/18 - Present **Nancy Grace Roman Space Telescope (RST)**
NASA/Goddard Space Flight Center

- Designed the mechanical packaging for the avionics power modules and box assemblies
- Created and reviewed part drawings for designed parts using GD&T
- Performed board level thermal analysis for each avionics power card
- Performed box level thermal analysis for each avionics power box
- Performed structural analysis of each avionics power box that was designed
- Integration of ETU and FLT PCB and box assemblies

5/17 – 8/18 **Robotic Refueling Mission 3 (RRM-3)**
NASA/Goddard Space Flight Center

- Developed detailed Thermal Desktop™ model for Xenon Transfer System (XTS) to design heater sizes that maintain the tank and prop lines above 17°C
    - Designed thermal control system for the XTS
- Updated Receiver Dewar thermal model with higher fidelity pipe fittings to analyze the thermal gradients in the system
- Supported box and component level TVAC tests
- Supporting full system level TVAC for FTM
- Supported I&T for the thermal subsystem
- Wrote work orders, test plans, and test procedures

Performed heater verification tests using cold spray methods

7/15 - 12/17 **Global Ecosystem Dynamics Investigation (GEDI)**
NASA/Goddard Space Flight Center

- Developed Thermal Desktop™ models of various subsystems to provide flight predictions and test model correlations
- Performed thermal analysis of Focal Plane Plate to investigate the effect of solar impingement on the plate and fiber optics
    - The addition of the telescope cover was added as result of analysis to eliminate the effect
- Performed board level and box level thermal analysis of Digitizer Unit (DU) for Preliminary Design Review (PDR) and Critical Design Review (CDR)
- Provided Thermal Vacuum (TVAC) and Thermal Balance (TB) test support for EM design
- Performed thermal analysis for Transmit Optics Assembly (TOA) and Boresight Adjustment Mechanism (BAM), supporting thermal design

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- Performed thermal analysis for Aperture Cover Mechanism (ACM)
    - Supported thermal design of flight unit
    - Created test model to provide test predicts and correlated the model with the test data
- Performed thermal analysis for Point Control Mechanism (PCM)
- Created test model to determine and decrease transition times during TVAC test

9/13 - 12/17 **Solar Orbiter (SO-HIS)**

NASA/Goddard Space Flight Center – European Space Agency

- Printed Circuit Board (PCB) thermal analysis using Thermal Desktop™ and SINDA/FLUINT
    - Electronic component junction temperature predictions
    - Post-process temperature and heat flow results
- Created Excel and Power Point presentation files in support of instrument CDR
- Updated ESATAN model with correlated model values and performed comparison to Thermal Desktop™ for consistancy
- Integrated all BOL/EOL case sets into one ESATAN model
- Supported thermal design for HIS instrument
- Provided support for HIS thermal balance test, correlated model to test data, and updated flight model with correlated model values for new flight predicts

3/16 – 3/17 **Tracking and Data Relay Satellite System (TDRSS)**

NASA/Goddard Space Flight Center

- Develop Thermal Desktop™ models of the spacecraft and components
- Perform flight correlation of TDRS 3-7 and TDRS 8-10 using Thermal Desktop™ thermal models
- Support TDRS-K/L pre-flight thermal model evaluation
- Support TDRS-K post-flight model correlation
- Developed addional thermal model components using Thermal Desktop™ to include additional fidelity
    - Gimbal Drive Assembly (GDA)
    - Battery Packs
    - Radiator Panels
    - Heater Simulations
    - Thrusters
- Support on-orbit operations, on-orbit/ground testing, analysis & support of on-orbit anomaly investigations, etc
- Improved Excel post-processing spreadsheets to compare flight and thermal model predictions
- Merged SINDA/FLUINT input data with Thermal Desktop™ that provided an integrated thermal analytical model
- Support for TDRS-M TVAC test
    - Provided thermal support for Boom Flex Harness (BFH) heater failure
- Performed thermal analysis for new heater

Jupiter Icy Moon Explorer (JUICE)

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Southwest Research Institute (SwRI)

6/15 – 3/16

- Develop ESATAN thermal model of ultraviolet spectrograph (UVS)
- Created Reduced Thermal Mathematical Model (TMM) and Geometrical Mathematical Model (GMM) for delivery

Ionosheric Connection Explorer (ICON)

University of California – Berkley (UCB)

- Supported thermal design of EUV instrument
- Performed thermal analysis for EUV instrument, and provided flight predicts
- Performed thermal analysis for FUV instrument
- Performed thermal analysis system level model
- Provided test predicts for CHU instruments
- Provided ICON Payload TVAC and TB test support

Magnetospheric Multi-Scale (MMS) Mission

NASA/Goddard Space Flight Center

- Provide observatory TVAC and TB test support

RELATED SKILLS

- Proficient in Thermal Desktop™ and SINDA/FLUINT
- Proficient in ESATAN
- Proficient in Microsoft Office
- Proficient in FEMAP
- GD&T training
- Visual Basic/Excel Macros
- MatLab and Labview experience
- Thermal Vac testing experience
- Experience using and calibrating measurement instrumentation
- Experiment design and assembly
- Data analysis

RELATED COURSEWORK

Direct Measurement of Boiling Water Heat Flux for Predicting and Controlling Near CHF

- Designed experiment to measure boiling heat fluxes with the goal of reaching critical heat flux (CHF)
- Built a high temperature heat flux sensor to measure surface temperature and heat flux
- Summited paper to ANS (American Nuclear Society) for publication