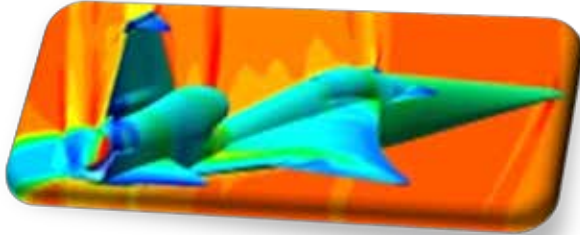


**Luke Munholand -ANSYS**



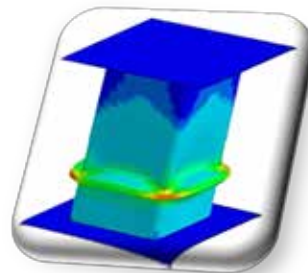
**Ranch News - KUBOTA Sunset**



**James R. Scapa - Altair -  
Streamlining Innovation by Drinking  
Our Own Champagne**



**Suraj D. Dhomase - crush box**



**TAXI- TOYOTA**



**Emily Owen - Presents Contact**



# ***FEANTM Table of Contents - Announcements***

## **Cover Pictures**

<b>04 James R. Scapa- Altair</b>	<b>12 LS-DYNA - Predictive</b>
<b>06 Luke Munholand -ANSYS - Supersonic</b>	<b>13 Emily Owen - Presents Contact</b>
<b>09 Taxi TOYOTA</b>	<b>14 Suraj D. Dhomase - crush box</b>

This month I have the Gossip Section first and then the engineering. We'll be trying different styles over the next few months, and I do appreciate when you send opinions and ideas.

[feaanswer@aol.com](mailto:feaanswer@aol.com) Marsha

<b>2</b>	<b>Table of Contents</b>
<b>3</b>	<b>FEA Marsha Gossip (maybe I should put this at the end of the publication?)</b>
<b>04</b>	<b>Altair - Streamlining Innovation by Drinking Our Own Champagne By James R. Scapa</b>
<b>06</b>	<b>ANSYS Supersonic</b>
<b>07</b>	<b>LS-DYNA Simulations - Supersonic</b>
<b>08</b>	<b>MSCSoftware co-simulation</b>
<b>09</b>	<b>TOYOTA Taxi</b>
<b>10</b>	<b>FEANTM News</b>
<b>11</b>	<b>FEANTM Guests</b>
<b>12</b>	<b>FEANTM February LS-DYNA® Sales, Demo, Training, Consulting</b>
<b>13</b>	<b>FEANTM Tutorials</b>
<b>14</b>	<b>FEANTM Simulations &amp; Favorites</b>
<b>15</b>	<b>FEA Not To Miss Events</b>
<b>16</b>	<b>FEANTM Coffee &amp; Gossip Section</b>

**All postings are public information, included as a FEANTM interest, and are copyright to the respective person and company.**

# ***FEANTM Gossip***

---

---

by Marsha, your monthly Gossip, Blogger, Imparter of Wisdom & Knowledge  
(okay that last title is stretching reality a tad, but sounded good)

1. February Pop Quiz? All Readers - What day is Not To Miss February 14?



HINT BOX:

Look at the owl!

Answer Try #1: **NO! That's NOT Be Kind to Owl day!**

Leave it to my readers and engineers to interpret a picture without using emotion, and using logic! See that little valentine heart on the owl? Now, with that hint, let's try it again with a variation on the question. February 14<sup>th</sup> is an important day for love!



HINT BOX:

Look at the HEART SHAPE ON THE OWL!

Answer Try #2: **NO, it's not optimizing Owl sweater day. One more try Mr./Ms Reader and/or Engineer! The day starts with a "V"**

**YES, you're correct this time. GOOD, or you would be optimizing furniture, since you would be sleeping on the couch.**

**Now for my Marsha Complaint.**

Have you noticed it's said that New Year's Resolutions fail in February? **YA THINK!** I start a diet in January, and then in February, they have Valentine's Day?

They sabotage you from the start! **NO** one gives someone a salad with diet dressing on Valentine's day. And if they did? See that furniture optimization/design above? You're headed for sleeping on the couch if you get someone a salad. **AND** getting them Diet No Sugar Candy? Uh, they may hint you have to lose weight? **Yep, Couch Present!**

**WAIT - unless you have insulin issues and then the Diet No Sugar Candy shows love like the owl picture!**

## ***FEANTM Article - Altair***

---

---

**Editor Note: Thanks to Jennifer Ristic, of Altair, for bringing this to our attention, through Altair's email Blog Updates**



### **Streamlining Innovation by Drinking Our Own Champagne By James R. Scapa on January 29, 2020**

As the founder and leader of Altair, I am constantly thinking about providing the best workplace for our people. How can I remove obstacles to innovation? How can I help free up time for our team to focus on value-added work, where they can use their bright minds to think and problem solve instead of performing repetitive “busy work?” The answer is simple: use our own tools.

[Direct link to article on Altair's Website](#)

When we acquired Datawatch in 2018 we were – and continue to be – bullish on the promise of using their data preparation, predictive analytics and machine learning (ML), data streaming and visualization tools to help customers make smarter decisions faster. When combined, the power of ML and artificial intelligence (AI) promised breakthroughs across all industries and segments. And guess what, we are seeing those improvements within our own processes.

I am proud of our people and feel it’s my responsibility to provide the best climate and culture for innovation and creativity.

I am proud of our people and feel it’s my responsibility to provide the best climate and culture for innovation and creativity. When burdened with less meaningful work, our teams’ full potential goes untapped. For example, they are better suited to think and problem solve than to do data entry. If we want to provide the best for our customers, we need to operate at our peak internally as well

One of our goals in 2020 is to streamline several functions in accounting and finance, and with our own data analytics tools we can automate many processes helping us to achieve that goal. Case in point; Altair’s accounts payable department had very manual processes for almost everything it touched. One of those tedious tasks is a weekly check run. This run is performed starting with a “dump” of the data scheduled for that week, looking for any issues that prevent payment and then finally, starting the process of prepping payments. This process in its entirety can take roughly 2.5 days to perform.

Enter, Altair Monarch®, our best-in-class data prep tool. Monarch has essentially shaved off one full day each week of time and effort on the report. That’s 52 days annually – nearly two months! Let that sink in for a minute. Imagine what your team could do with that time saved.

# ***FEANTM Article - Altair***

---

---

**Editor Note: Thanks to Jennifer Ristic, of Altair, for bringing this to our attention< through Altair's email Blog Updates**

I like to spend time talking with our team, gathering feedback and input (I firmly believe open and honest communication makes us better). I was speaking to Crystal, who runs our accounts payable department and she shared that this automation has “drastically improved” her work life for the better. And this is just the beginning, there are several other areas where we will be implementing automation thanks to our data tools.

Our Enterprise Business Solutions team is utilizing our collaborative data preparation and marketplace solution, Altair Knowledge Hub™ to curate and share data. Reports from this data are visualized using Altair SmartSight™, which provides insight into the current and future total cost of employees.

On the cybersecurity front, we are using Altair Panopticon™ to visualize live streaming data to help us spot any abnormal cyber activity and to benchmark and monitor normal activity. Panopticon will provide alerts to any security breaches and awareness/monitoring of our information systems.

I'm thrilled with the immediate impact this software is having on our own business and confident that our solutions can improve our efficiency and productivity.

**Altair Blog [<https://blog.altair.com/>]**

**Article Author: James R. Scapa, Chairman and Chief Executive Officer at Altair**

James R. Scapa brings more than 35 years of engineering experience to his role as Founder, Chairman, and CEO of Altair He is leading this global company that provides simulation technology and engineering services that empower client innovation and decision-making. Prior to establishing Altair, he served as an engineering consultant to the automotive industry, beginning his career with Ford Motor Company in 1978. He holds a bachelor's degree in mechanical engineering from Columbia University and a Master of Business Administration from the University of Michigan.

---

And not to miss Altair Blog by:

Top 3 HPC and Cloud Predictions in 2020  
By Sam Mahalingam

Data Analytics Predictions for 2020  
By Sam Mahalingam

# ***FEANTM Article - ANSYS Supersonic***

---

---

**Editor Note:** Thanks to Luke Munholand for an informational posting on the ANSYS website

## **What Happens When Experts Silence Supersonic Flights?**



**Author:** Luke Munholand



**Luke Munholand is a lead application engineer at ANSYS**

**One of the biggest limitations of supersonic flight is the deafening sound of a sonic boom that follows a flyover.**

...

**Engineers are using simulations to help make commercial supersonic travel viable again through a certification process. The idea is to create planes that surpass the sound barrier without waking up the neighborhood.**

**To do this, engineers need to perform a nearfield computational fluid dynamics (CFD) analysis to predict the sounds created by the pressure buildup of the aircraft's flight.**

**They then need to compare and investigate the propagation, volume, grid refinements and statistics of the noise as it travels to the ground.**

**ANSYS is working with NASA and the American Institute of Aeronautics and Astronautics (AIAA) to refine the classic aircraft shape, and its simulation mesh, with the goal of making supersonic flight easy on the ears.**

**Will Aircraft Fly Faster Than Sound Without Sonic Booms?**

**The full article and the answer to the above question is located on the ANSYS website:**

**[Full Article](#)**

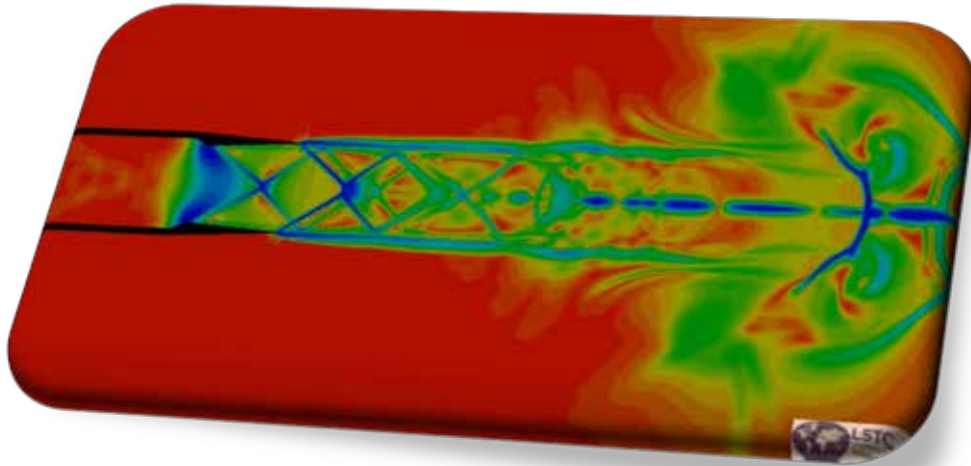


# ***FEANTM Simulations - Supersonic***

---

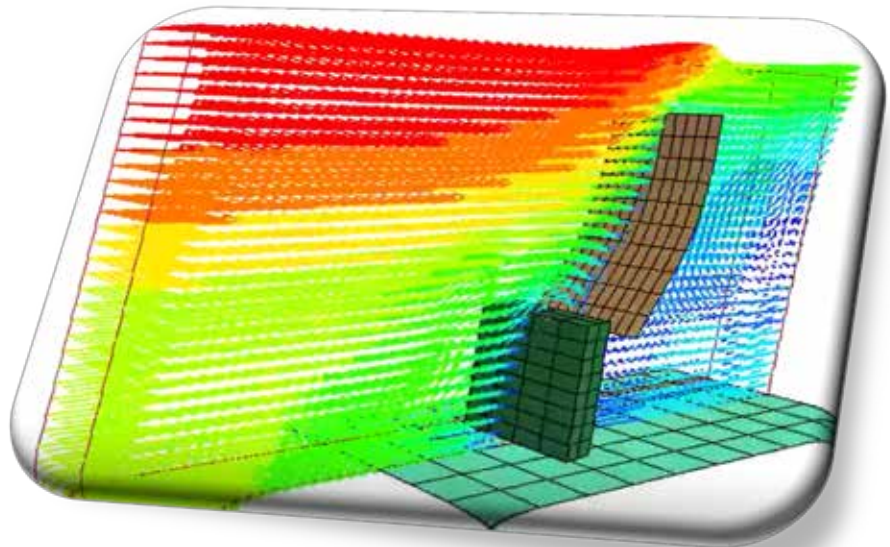
---

Editor Note: Following with our previous Supersonic article we want to share the following simulation from the LS-DYNA Multiphysics Channel.



Flow structure of supersonic jets from conical C-D nozzles

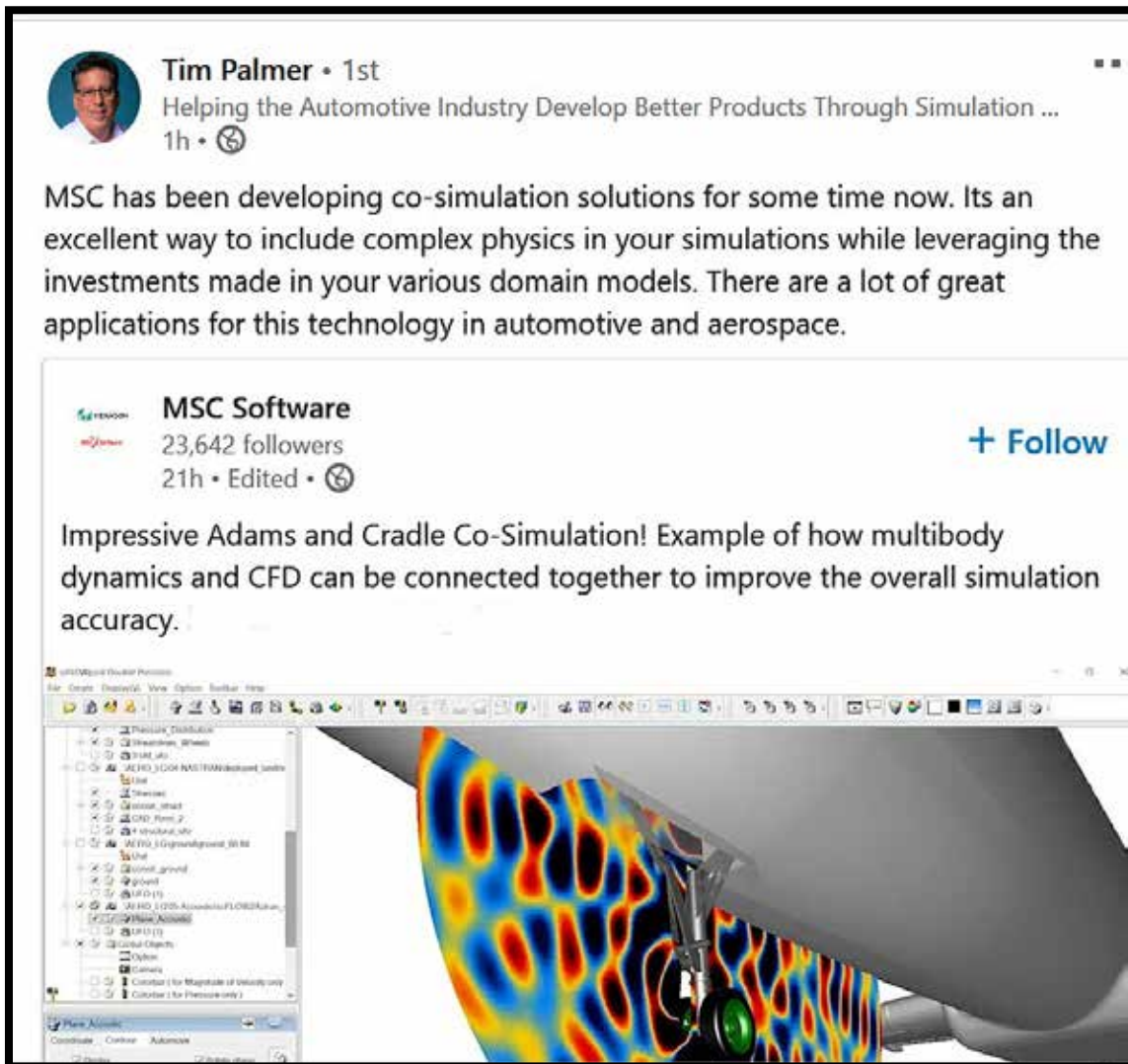
FSI Supersonic flow



## *FEANTM posting MSC Software*

Editor Note: Thanks to Tim Palmer for his posting on LinkedIn

To read the full article please Visit Link: [MSC Article](#)



The image is a screenshot of a LinkedIn post. At the top left is a circular profile picture of Tim Palmer. To its right, the text reads "Tim Palmer • 1st" followed by a truncated bio: "Helping the Automotive Industry Develop Better Products Through Simulation ...". Below this, it says "1h • 🌐". The main text of the post is: "MSC has been developing co-simulation solutions for some time now. Its an excellent way to include complex physics in your simulations while leveraging the investments made in your various domain models. There are a lot of great applications for this technology in automotive and aerospace." Below the text is a card for "MSC Software" with a logo, "23,642 followers", and "21h • Edited • 🌐". To the right of the card is a blue "+ Follow" button. The bottom half of the screenshot shows a software interface with a 3D model of a mechanical part. The model is overlaid with a color-coded stress or pressure distribution map, with red and yellow indicating high values and blue indicating low values. The software interface includes a menu bar, a toolbar, and a tree view on the left side.



# ***FEANTM posting TOYOTA Taxi***

---

---

Editor Note: Thanks to Curt Chan for his posting on LinkedIn

Below we share the full article located on the TOYOTA Website

## [Toyota Makes a New \\$394 Million Bet on Flying Taxis](#)



SANTA CRUZ, Calif. (January 15, 2020) Toyota is exploring a new flight path for mobility through a new collaboration with Joby Aviation (Joby), an aerospace company that is developing and commercializing all-electric vertical take-off and landing (eVTOL) aircraft to enable the deployment of fast, quiet and affordable air transportation services. The collaboration reflects Toyota's recognition of the long-term potential of the urban air mobility market to meet the evolving needs of society, as well as Joby's position as an industry leader in working to deliver safe and affordable air travel to everyone.

"Air transportation has been a long-term goal for Toyota, and while we continue our work in the automobile business, this agreement sets our sights to the sky," said Toyota Motor Corporation President and CEO Akio Toyoda. "As we take up the challenge of air transportation together with Joby, an innovator in the emerging eVTOL space, we tap the potential to revolutionize future transportation and life. Through this new and exciting endeavor, we hope to deliver freedom of movement and enjoyment to customers everywhere, on land, and now, in the sky."

As the lead investor in Joby's \$590M Series C financing, Toyota is continuing to leverage emerging technologies to provide "Mobility for All." In addition to investing \$394M in Joby, Toyota will share its expertise in manufacturing, quality and cost controls for the development and production of Joby Aviation's breakthrough eVTOL aircraft. Joby's design is well matched to serve the needs of an emerging air transportation market where commuters and travelers embrace the benefits of aviation on a daily basis within and between urban centers. More details of the prototype aircraft and production plans will be announced at a later date.



FEA Publication

Emily Owen presents [LS-DYNA Introduction to Contacts](#)

[January FEA Engineering Magazine](#)

FEANTM News

[January Issue of FEANTM](#)



[Short description \(Webinar extract\)](#) of the LS-DYNA EM solver capabilities in terms of battery modelling and the motivations behind it.



[The DYNAmore company brochure](#)



[LST, LLC jointly developed tire models with FCA](#). The models are based on a series of material, verification, & component level tests.



[LS-DYNA: Common Contact Examples & Cases](#)

## ***FEANTM* Guests**

---

---

**Editor Note:** Guest Section does not show association with FEANTM. We felt they were knowledgeable, with information you shouldn't miss.



**01/27** SO, what's a Complete vehicle CAD extraction you ask? I had no clue, so this was informative. [Mr. Jesper Bäcklund from China Euro Vehicle Technology AB](#)



**01/20** I advise that this is a video not to miss! GO Eric! (that was a cheer, I think now called a shout out) [Bringing reality into the virtual world](#) - Mr. Eric Dehoff from Honda R&D Americas Inc.



**01/13** Best way to simulate a human body? Use a human body model. [THUMS](#) - Total Human Model for Safety [Video](#)



**01/06** - Gotta love this blog by Bill Kemp - who doesn't love Hot Chocolate! Or any chocolate!

[Simulating Holiday Hot Chocolate: Gateway to Industrial Multiphase](#)

---

# FEANTM February LS-DYNA®

## Sales, Demo, Training, Consulting

**Editor Note:** Based on our knowing the company, their website has technical information. And that they'll assist you without the pressure jargon, that starts with, "You need to buy more add-ons." We SO hate pressure sales that add on cost.

[Predictive Engineering](#) will offer you information, pricing, consulting, training. **AND** don't miss their [Pop Quiz Section](#). For your demo, questions or purchase contact [sales@predictiveengineering.com](mailto:sales@predictiveengineering.com)



We are experienced simulation engineers that have successfully analyzed and validated hundreds and hundreds of finite element analysis (FEA) projects. With more than two decades experience we know how to optimize your design to deliver every last bit of performance and to ensure that it will meet your service requirements whether in Aerospace, Marine, Energy, Automotive, Medical or in Consumer Products

LS-DYNA® from Livermore Software Technology (LST)/ANSYS is the world's most advanced general-purpose nonlinear finite element program. It is capable of simulating complex real-world problems, and is widely accepted as the premier analysis software package for today's most challenging engineering applications.

At Predictive Engineering, we are longtime experts in LS-DYNA software and can help you buy LS-DYNA and then guide you through the acquisition, licensing, installation, support and in-depth LS-DYNA training. We like to say that we don't sell LS-DYNA but we advocate LS-DYNA to clients where it will make them money.

A 3D CAD model of a complex mechanical component, possibly a turbine or engine part, is shown in a cutaway view. The model is rendered in various colors (blue, yellow, red, green) to highlight different sections or materials. A white hand cursor is positioned over one of the internal features, suggesting an interactive software interface.


**Get LS-DYNA**

Software, training and support for the most advanced non-linear multiphysics simulation analysis software.

+ Get started with LS-DYNA Software

# FEANTM Tutorials

Editor Note: More tutorials are on our website. All are copyright to their respective authors.

	01/27/2020 - Emily Owen presents <a href="#">LS-DYNA Introduction to Contacts</a>
<b>Thermal</b>	<a href="#">LS-DYNA Basic Tutorial: Thermal Tutorial</a>
<b>Beginner</b>	<a href="#">LS-Dyna Ball and Block Tutorial Part 3: Database Node and Element Sensors</a>
<b>Material</b>	<a href="#">Tutorial Material Models</a>
<b>LS-PrePost</b>	<a href="#">Mini LS-PrePost Tutorials</a>
<b>FSI</b>	<a href="#">How to set up a 3D FSI case in LS-DYNA</a>
<b>LS-FORM</b>	<a href="#">Progressive Die PostProcessing</a>
<b>Oasys Primer</b>	<a href="#">Oasys PRIMER v16.0 Updates</a>
<b>Intro</b>	<a href="#">LS-DYNA Ball and Block Tutorial Part 1: Mesh and Boundary Condition Setup</a>

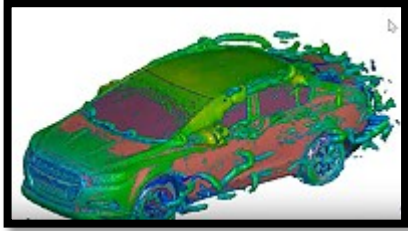


# FEANTM Simulations & Favorites

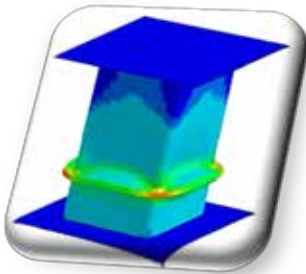
---

---

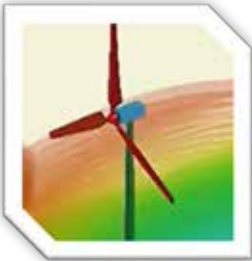
Editor Note: Showcased on our website - Weekly choices [www.feantm.com](http://www.feantm.com)



Monday 01/27/2020 - VROOOOM - I love this video -okay, I like the colors, BUT I do like the technical part. Therefore the coffee this week is Cafe Color Vroom (so unprofessional but I'm now RP (retired paralegal), so it doesn't matter what I name the coffee) [Transient FSI simulation of underbody panel](#)



Monday 01/20/2020 - Well, although my coffee cups stood up to last week's wind turbines, I have to admit, on the below simulation of the CRUSH Coffee Cup, they went flat. So, we shall head over to YouTube, where Suraj will simulate a crush box and not my coffee cups! This week I shall serve Crush Coffee with a hint of espresso! [CRUSH BOX Quasistatic Analysis](#) - By Suraj D. Dhomase (you can also find him hanging out on LinkedIn)



Monday 01/13/2020 - I know, your question is will my to go coffee cups stand up to a wind turbine. Of course they will! NOT! We'll call saying that they will stand up to a wind turbine using LS-DYNA a marketing stretch of the truth! But, now we'll all book on over to YouTube. [Wind turbine simulation using LS-DYNA](#)



01/06/2020 We start January off with SNOW! Okay, I'm in California, so for me, it's rain, BUT most of you will be having Coffee with a side of snowball AND now on to what your car feels in the snow. [LS-DYNA CFD: Driver Benchmark plus DEM particles, study of snow deposition on vehicle](#)



## ***FEA Not To Miss Events***

---

---

if you have a conference to share please send me start date, title, url.

Marsha: [feaanswer@aol.com](mailto:feaanswer@aol.com)

<b>Starts</b>	<b>Year 2020 Get Ready</b>
03/20	<a href="#"><u>UK Oasys LS-DYNA Users' Meeting</u></a>
04/24	<a href="#"><u>Lightweight Design Summit</u></a>
05/26	<a href="#"><u>NAFEMS Nordic Regional Conference</u></a>
05/31	<a href="#"><u>16th Int'l LS-DYNA Conference &amp; Users Meeting</u></a>
06/09	<a href="#"><u>NAFEMS UK Conference 2020</u></a>
06/16	<a href="#"><u>CAASE20: Conference on Advancing Analysis &amp; Simulation in Engineering</u></a>
06/23	<a href="#"><u>MSC Software Conference 2020</u></a>
10/07	<a href="#"><u>16th German LS-DYNA Forum in Ulm, Germany</u></a>

## ***FEANTM Coffee & Gossip Section***

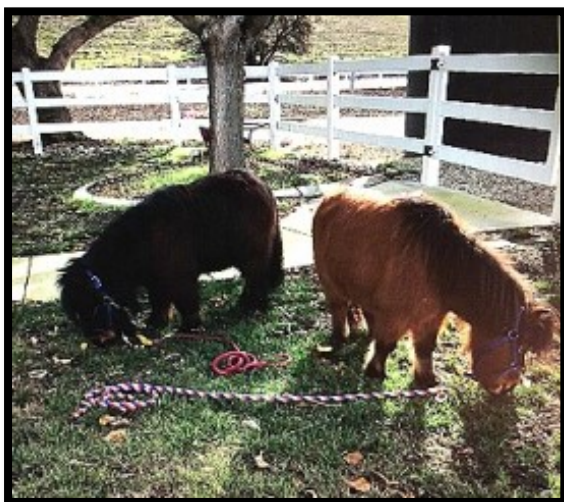
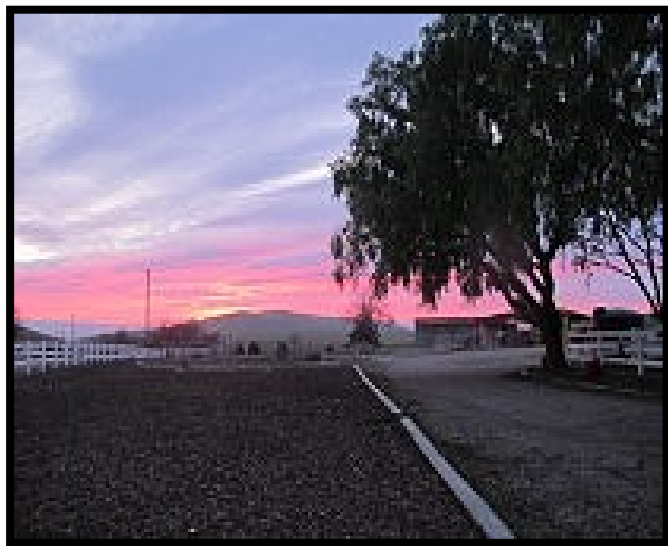
---

---



I know I wasn't going to complain about rain, but this is mud over my sneaker while I have to be in the paddocks. SO, below is a beautiful sunset since I know you are fed up with me complaining about rain.

Below we have wife photo vs. husband photo of what makes a sunset picture. WHY does my husband want his tractor in his photo? NO, we will not take a vote. He'd probably win, and this is MY blog! He can have his own blog called TractorRMe



01/20/2020 - Quincy and Dusty can graze 5 minutes on grass - yes, that was only 5 minutes. That's like me trying to eat 5 potato-chips! Getting them to the grass is easy. Getting them away is pulling 150 pounds each. BUT, I bribe them to follow an apple!

I now have my own environmental lawn mowers

## ***FEANTM Coffee & Gossip Section***

---

---



01/13/2020

Hero bouncing his way into the pasture. It's finally stopped raining for a few hours. Had to let him run even though it means cleaning mud off of 4 hooves!



01/06/2020

Running in the pasture. This is nice to watch since he has degenerative ligament issues in his hind legs.