

CONFERENCE INFORMATION
15th AAS/AIAA Space Flight Mechanics Meeting
23-27 January 2005
Copper Mountain, Colorado



ABSTRACT DEADLINE: 1 October 2004

Note that details of conference events are preliminary and subject to change

The American Astronautical Society and American Institute of Aeronautics and Astronautics invite you to attend the 15th Space Flight Mechanics Meeting. The technical program will feature papers covering diverse areas of astrodynamics, including

- Orbital dynamics, perturbations and stability
- Orbit determination and tracking
- Spacecraft guidance, navigation and control
- Trajectory design and optimization
- Earth orbital and planetary mission studies
- Attitude dynamics, determination and control
- Low thrust mission and trajectory design
- Satellite constellations and formation flying
- Dynamics and control of large space structures and tethers
- Artificial and natural space debris
- Trajectories about libration points
- Asteroid and Non-Earth Orbiting missions
- Probability of Asteroid Earth Collisions
- Rendezvous/proximity operations missions

Additionally, several special sessions are planned including Open Astrodynamics and Standards, Novel Lunar and NEO Mission Design and Analysis, Electric Propulsion, and Orbit Mechanics and Education in Astrodynamics. We look forward to seeing you in January!

Registration

The following registration fees will be in effect for this conference:

AAS or AIAA Members	\$300
Nonmembers (include one year membership in the AAS)	\$385
Students	\$100

Registration Schedule

Sunday	23 Jan	6:00 PM – 8:00 PM
Monday	24 Jan	6:30 AM – 10:00 AM and 4:00 PM – 6:45 PM
Tuesday	25 Jan	7:00 AM – 10:00 AM and 4:00 PM – 6:30 PM
Wednesday	26 Jan	7:00 AM – 10:00 AM and 4:00 PM – 7:00 PM

Registration and payment will be on-site only. Cash, checks, and credit cards will be accepted. Checks should be made payable to the "**American Astronautical Society.**"

Paper Presentations

Technical sessions will start at 7:15 AM and 4:15 PM each day. Presentations are tentatively scheduled for 20 min: 15 min for the presentation and 5 min for questions. Speakers must adhere to this time allotment so that attendees may schedule their time between parallel sessions. Please note that a strict **NO PAPER / NO PODIUM** rule is enforced, i.e., speakers will not be allowed to present their work if they have not provided 50 copies of the written paper.

Speakers will have access to a computer with CD-ROM drive, LCD projector, and overhead projector for their presentations. If using the computer projection system, speakers should contact their session chairs to load their briefings before the session. Additional A/V equipment requests must be made no later than January 1, 2005; please contact [Mr. David Vallado](#), AAS General Chair with any questions.

Speaker's Breakfast

Authors who are making presentations and session chairs will meet for a short briefing at 6:30 AM on the morning of their session. A light breakfast will be served.

Paper Preprints and Conference Proceedings

Authors are required to bring 50 copies of their paper to the conference. The preprints will be on sale for \$1.00 per paper in a designated room adjacent to the meeting rooms. Bound copies of the conference proceedings may be ordered at the registration desk at a reduced prepublication cost. Orders for the conference proceedings will be accepted at the time of registration. After the conference the proceedings will approximately double in cost.

Committee Meetings

Committee meetings will be held according to the following schedule. A joint committee lunch will be served in between the meetings.

AIAA Committee on Standards	Sunday	8:00 PM – 9:00 PM
AIAA Astrodynamics TC	Monday	10:00 AM – Noon
Joint AAS/AIAA TC Luncheon	Monday	Noon – 1:30 PM
AAS Space Flight Mechanics TC	Monday	1:30 PM – 3:30 PM

Special Events

- Sunday:** Lift-front Cocktail Reception, 6:00 – 8:00 PM
- Monday:** Award Presentations and Dirk Brouwer Award Lecture, 7:45 – 9:15 PM
- Tuesday:** Social at Copper Resort, 7:30 – 9:30 PM (Not included with Student Registration)



While we have designed the conference to maximize the opportunity to interact with colleagues and present papers, we felt a social would provide an added opportunity to meet and socialize.

Points of Contact

All material (cover page, abstracts) should be sent to each of the Technical Chairs:

AAS Technical Chair

Dr. Michael Gabor
 Northrop Grumman Mission Systems
 730 Irwin Avenue, MLS CS10/STEC
 Schriever AFB, CO 80912-7200
 719)567-8185
 email: michael.gabor@schriever.af.mil

AIAA Technical Chair

Mr. Prasun Desai
 NASA Langley Research Center
 8 Langley Boulevard, MS 365
 Hampton, VA 23681-2199
 (757) 864-2986, (757) 864-8671 (fax)
 email: prasun.n.desai@nasa.gov

For other questions regarding the conference, please contact the General Chairs:

AAS General Chair

Mr. David Vallado
 Analytical, Graphics Inc.
 7150 Campus Drive, Suite 260
 Colorado Springs, CO, 80920-6522
 (719) 573-2600, (719) 573-9079 (fax)
 email: dvallado@agi.com

AIAA General Chair

Mr. Keith Jenkins
 2222 N. McQueen Road #2069
 Chandler, AZ 85225
 480 226 0856
 email: jenkinskl-pg@cox.net

Lodging Rates

The conference will be held at the Copper Conference Center in Copper Mountain Colorado, a modern lift-side location in the heart of the Colorado Rockies. Since the month of January is during the peak of the ski season in Colorado, **it is imperative for attendees to make lodging arrangements as soon as possible.** The conference has negotiated the following group rates for a limited number of rooms. These are excellent rates for the central Colorado mountain area. There are rates that fall within the maximum lodging allowance for government travelers.

Room	Single Rate	Room	Single Rate
Silver Hotel Room	145	Gold Hotel Room	175
Silver Telemark Studio	160	Gold One Bedroom /Den	225 / 250
Silver One Bedroom	175	Gold Two Bedroom	350
Silver Two Bedroom	300	Gold Three Bedroom	400

THREE LEVELS OF LODGING:

Gold: These units represent the finest in accommodations and are strategically located throughout the Village allowing convenient access for you to participate in all of the Resort's exciting activities. You'll enjoy a private fitness room, outdoor spa, a game room and heated underground parking in the buildings. The rooms offer a large soaker tub, gas fireplaces, cable TV, VCR, and full kitchens in condo units.

Silver: These units are well-designed for comfort and aim to meet your every lodging need. Located mountain-side or within yards of our complimentary shuttle system, they remain some of our most requested and valued guest units.

Bronze: These units offer distinct characteristics to fulfill your basic lodging needs. Our most affordable units, they are perfect for the ski-all-day, party-all-night, never-in-your-room die hards.

LODGING AMENITIES:

Hotel Rooms: A standard hotel room with one king/queen bed, two double beds or a queen Murphy bed. Most units also have a small sitting area. Each room is equipped with ironing board and iron, coffee maker, and hair dryer.

Deluxe Studios: Offering a small kitchen and a queen size Murphy bed, these units work well for individuals who like to cook an occasional meal or who prefer more living space.

One Bedroom Condos: Whether it is a couple interested in more room or an attendee to have small, informal meetings in their unit, these are equipped with a spacious living room, full kitchen and a separate bedroom. One king/queen bed and one queen size pull-out sofa bed, the one bedroom condos sleep up to four people.

Two Bedroom Condos: The two bedroom units offer a master bedroom with attached bathroom, another bedroom and bathroom and a queen size pull-out sofa, sleeping up to six. Families or individuals wishing to share a unit, but not a bedroom fit comfortably in these units. Bedding arrangements vary from kings and queens to double beds.

Three Bedroom Condos: The largest of our condo units, three bedrooms and three bathrooms allow enough room for whatever you are looking to do and whoever you are bringing!

Lodging Reservations

Please call the Copper Mountain Resort at **888-219-2441**, (970-968-2882 local) to make your reservations. Please mention group code: **2AJ6YP** when making your reservations.

- Identify yourself as part of the **AAS/AIAA Space Flight Mechanics Conference**, group code: **2AJ6YP**, in order to receive the group rate.
- One night lodging amount will be required upon making reservations.
- For individual attendees who cancel their lodging reservations, the following will be in effect:
 - If canceled 15 days or more prior to arrival date, refund on the deposit amount received will be made less 10%.
 - If canceled between 7 and 15 days or more prior to arrival date, refund on the deposit amount received will be made less 30%.
 - If canceled 7 days or less prior to arrival, the individual is subject to full forfeiture of the reservation value. This may be waived for emergency situations but must be authorized by Copper Mountain Resort

- The hotel will offer the group rate three nights before and after the conference based upon availability.
- Reservations must be made by **24 December 2004** in order to receive the conference group rate. After this date, reservations will be offered on a space available basis at the prevailing rates, which are considerably higher.
- For information on the conference center visit [Copper Conference Center](#).
- **Check in/ Check out Times**

Check-in time is 4:00 p.m. We are not able to confirm room availability prior to that time. Check-out time is 10:00 a.m.

Express check-out is available for all lodging attendees. Attendees need only to contact the express check-out hotline stating their name and room number. The credit card on file will be used for payment and a copy of the folio will be mailed to the attendee.

Parking Policy

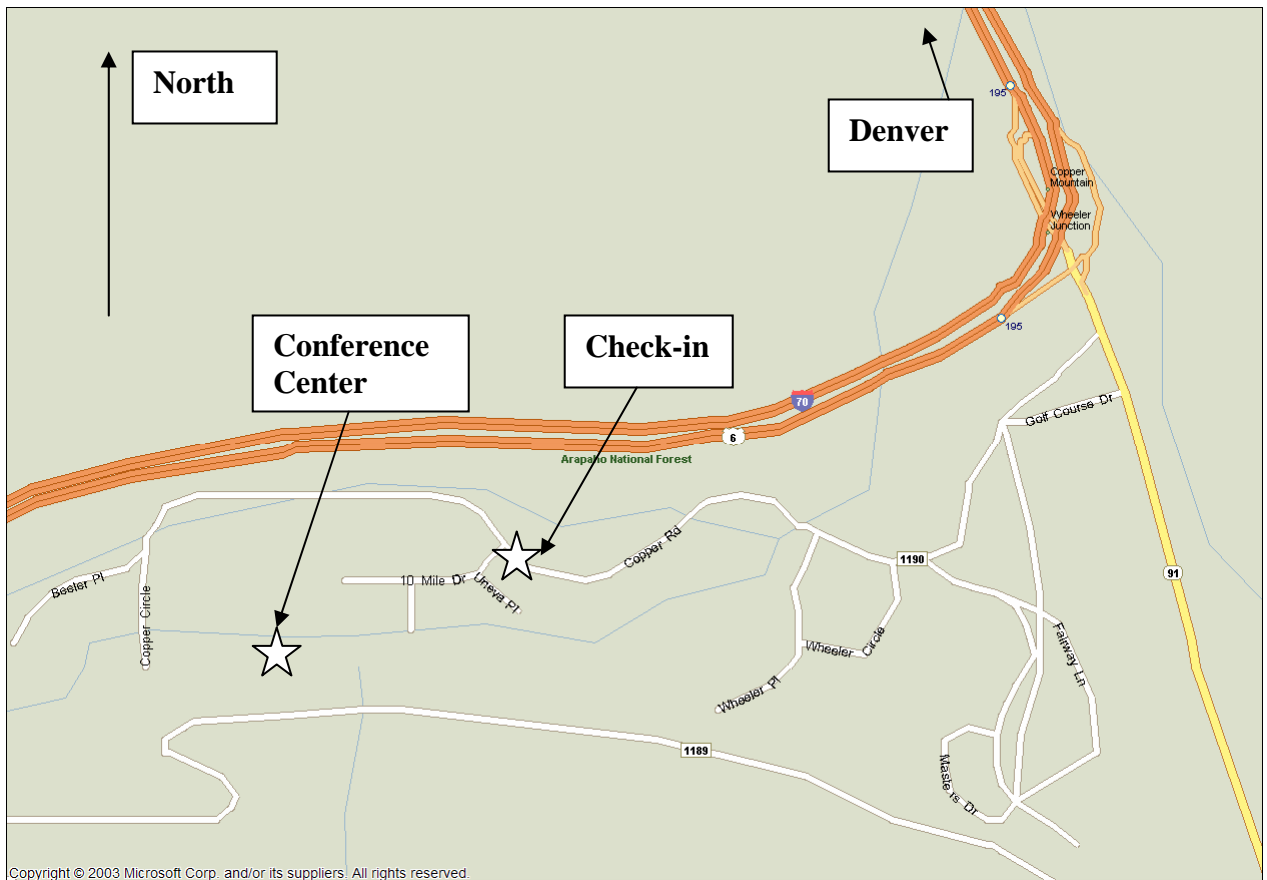
Complimentary parking is available to Copper Mountain Resort lodging guests. Conference attendees not lodging in Copper Mountain Inc.- managed properties will be required to pay daily parking fees for close-in parking. Free parking is available in the Alpine Lot by the entrance of the resort. Shuttle bus service from the Alpine Lot begins at 6:30 AM and runs every 30 minutes until 7:30 AM. Continuous service begins at 7:30 AM. Shuttle service schedule is subject to change without notice.

Other Details

- **Location of Reception Center and check-in**

Copper is located off Interstate 70 exit 195. As you enter the Resort on to Copper Road travel ½ mile, registration/check-in is located on the right hand side in the "Lodging Check-in/Athletic Club Building."

Please note that the Copper Resort is divided into 3 distinct locations, all of which are served by Copper shuttle buses. The Union Creek, Center Village, and East Village are the main locations. The conference center is in the Center Village, and the lodging rooms have been placed near to the conference center. Note that lodging check-in is done along the Copper Road (next to the Athletic Center and the pool). See the following map.



- **Travel Plan Assistance**

Copper's group travel department is able to book your air, ground transfers and rental car needs. Their partnerships with major airlines, car rental companies and shuttle services allow them to pass substantial savings on to you. Many of their bulk contracts allow travel to be arranged with little or no advance purchase, as well as no Saturday night stay. Shuttle transfers from Denver International Airport can be reserved on Resort Express, or for more upscale arrival experiences, VIP transfers in private sedans, SUV's and executive vans. For more information please contact Group Travel Manager, Ms.Roberta Fish 970-241-1822 or via e-mail fishr@coppercolorado.com

Transportation

Copper Mountain is easily accessible and is served by Denver International Airport as well as Colorado Springs and Vail/Eagle county airports. Denver International Airport is located 90 miles/144 km east of the resort and is served by most domestic and a large number of international carriers. The Colorado Springs Airport is located 200 miles/320 km southeast of Copper and is served by most domestic carriers.

Transportation from Denver International Airport may be arranged via Colorado Mountain Express. Shuttles run every hour during ski season and every hour and a half during summer and fall. Charter bus service for groups of 25-47 passengers and private vehicles including 8 passenger executive vans, 5 passenger Suburbans and 3 passenger sedans are also available from any location including private airports in Colorado. Meet & Greet service at DIA available for nominal service fee. The trip between Denver International Airport and Copper takes approximately 2-3 hours.

Winter Shuttle Schedule 2004 (effective November 20-April 19, 2005): \$54.00 one way per guest

Shuttles depart from Denver every 90 minutes from 8:30am to 11:00pm.
Shuttles depart from Copper every 90 minutes from 5:30am to 7:30pm.
Phone: 1-800-334-7433

Once you're at the mountain, the Summit Stage provides free bus service daily within Summit County throughout the ski season. Destinations include the towns of Breckenridge, Dillon, Frisco, Keystone and Silverthorne. Phone: 970-668-0999.

For travel in the Copper Mountain resort, the Copper in-village shuttle can be used. For your convenience, buses run throughout the Copper Mountain Resort villages providing transportation to the ski slopes, village shops, restaurants, conference centers and base facilities.

Winter transportation consists of Express buses from the Alpine and Corn Parking lots to all three base areas and an intra-village system. Transportation runs 6:00 a.m till 11:00 p.m.

Area Information

After completing the first surveys of Copper mountain the US. forest service said...



"If there were a mountain that had terrain for skiing it would be Copper Mountain. It is probably the most outstanding potential ski area in the Arapahoe National Forest, and possibly Colorado. The north facing peaks of Copper Mountain offer an excellent variety of development for expert, intermediate and beginner skiers. The unique thing is that all three varieties are separated by definite terrain features, and in all three cases the skier can ski back into the base area. The mountain has good snow and sparse tree cover created by old burns, which offers a tremendous opportunity to create natural type runs that blend in with the surrounding countryside."

Copper is one of Colorado's best ski areas, enjoying thirty years of awesome skiing and snowboarding.

Area Attractions

SKIING!!!

We have negotiated discount lift tickets and lessons, however they must be purchased before arrival. See the attached form.

Why ski Colorado? Summit County, Colorado offers the longest ski season in the Western U.S. Last season, Copper was open from November 1, 2003 to April 18, 2004. And Colorado is renowned for its sunny, blue-sky days along with some of the best powder in the world. Copper is Summit County's largest ski area with over 2,400 skiable acres, a vertical drop of 2,601 feet, and it averages 280" of snowfall during our ski season. The base elevation is 9,712 feet, and the summit is 12,313 feet.

TUBING HILL : Experience the thrills and spills of tubing at the Copper Mountain tubing hill. Great family fun after a spectacular day of skiing. Children must be taller than 40" to ride by themselves. Located on the Treble Cliff trail under the Super Bee chairlift in the East Village.

SNOWSHOEING : Enjoy the peaceful exhilaration of snowshoeing on all 25 kilometers of designated cross country ski trails. Snowshoe rentals are available at all Copper Mountain rental shops. How about a guided moonlight tour? It's a great way to explore the mountain in a different light.

SNOWMOBILE TOURS : Professionally guided snowmobile tours are available to take you on an unforgettable Rocky Mountain backcountry adventure.

SNOWCAT TOURS : These two-track machines, fully enclosed and heated, take 12 people touring near the town of Vail. Passengers are carried as high as 10,500 feet to sip hot chocolate in a rustic, 1930's cabin then visit the ghost town of Gilman as well as see the back bowls of Vail ski resort and the White River National Forest.

DOG SLEDDING : On the 1 hour 30 minute back country trip, you get to alternate with your friends between mushing the dogs and riding in the sleigh. A thrill at every level!

HORSEBACK RIDING : This winter horseback tour winds along the Blue River and foothill of our national forest. Dress warmly, the horses do!

WINTER VILLAGE ACTIVITIES

ICE SKATING : A classic winter activity that is truly fun for the whole family. Ice skating is free and skate rentals are available from 9600' retail store. Located on West Lake in the Center Village.

COPPER MOUNTAIN RACQUET AND ATHLETIC CLUB : Copper offers one of the premier full-service athletic clubs in the Rocky Mountains. The Center features an indoor pool, cardiovascular equipment and full weight room, indoor racquetball and tennis. The club also offers spas, steam rooms, saunas, massage services and facials. Club access is free to most lodging guests. Located on Copper Road in the Center Village.

DINNER SLEIGH RIDES : After a full day of skiing, enjoy one of Copper's horse-drawn sleigh rides. Sip winter warmers and then step into a sleigh for a 45-minute guided adventure through the woods. Arrive at our cozy miners tent where a delicious Old West meal will set your mouth watering, while the live entertainment sets your toes tapping. Reservations are required.

LOCAL AREA ACTIVITIES

FACTORY OUTLET SHOPPING IN SILVERTHORNE: There are over 200 shops and 100 restaurants just a snowball's toss from Copper. The Prime Outlets at Silverthorne and the towns of Frisco, Vail and Breckenridge await you.

CASINO SHUTTLE: Try your luck gambling in Colorado's historic gaming districts of Blackhawk and Central City. Daily excursions depart from your lodging location.

COPPER AMBASSADORS

Look for our Ambassadors both on and off the mountain. They can assist you with everything from dining and ski school information, to the latest on trail and snow conditions.

COPPER TOURS

Discover Copper's hidden secrets, best trails and history with a free tour hosted by Copper Mountain Ambassadors. Tours are available at the Blue, Blue-Black, and Black levels of skiing ability. Reservations are recommended and can be made at the Information Booth off the top of the American Eagle lift before 3 p.m. on the day prior to the tour.

Where and When

Times: 10:30 a.m. and 1:30 p.m. daily

Duration: 1 1/2 to 2 hours

Restaurants on the Mountain:

T-REX GRILL: The place to be on sunny days. The T-Rex, an outdoor grill, serves such specialties as brontosaurus burgers, Dino fries, snacks, beer and wine. In the spring, the afternoon deck parties are the best on the mountain. Located mid-mountain at the base of the Timberline Express.

SOLITUDE STATION: Enjoy breakfast or lunch with the best views on the mountain. Solitude offers panini sandwiches, homemade pizzas, fresh sandwiches, burgers, soups, chili, salads and delicious vegetarian fare. Located mid-mountain between the American Eagle and The Excelerator.

AMERICAN FLYER BBQ: Flyers offers a sundeck complete with outstanding vistas of the upper mountain and serves up sandwiches, snacks and drinks. Located at the top of the American Flyer lift.

Restaurants off the Mountain:

Endos

Prvada

Frijoles

Blue Moose

Imperial Palace

The Mill Cafe At Union Creek

Camp Hale

Grand Hall, East Village

Alexanders

Copper Field

Tucson Grill

Salsa Mountain

Creek Side Pizza

Jr's Rocky Mountain Tavern At East Village

Jack's Slopeside Grill & Bar