Jet Propulsion Laboratory,
California Institute of Technology

Postdoctoral Handbook

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Disclaimer

This handbook is intended as an informal guide that encapsulates current JPL policy and procedures. Be aware, however, that the information given within is subject to change with little or no warning.

Updates and error correction

Please direct any corrections or updates to the JPL Postdoctoral Office
at: postdocs@jpl.nasa.gov

Message from the Director – Dr. Charles Elachi

JPL is about expanding our scientific knowledge of the world around us; about exploring our own planet, our solar system and the universe all the way back to its beginning. We do this by having the best teams of scientists, engineers, technologists, technicians and administrators working together. The scientists at JPL are a critical element in our success by always questioning what we think are facts, suggesting novel ways of approaching problems, exploring new avenues of thinking and leading the Lab into new fields of research. JPL scientists are essential for JPL's and NASA's success, not only by being at the leading edge of their field, but by being the "ambassadors" of the science community on our projects and vice versa. The success of JPL is anchored in the talent, boldness, integrity, commitment and ingenuity of all its employees and the unrelenting search for new knowledge by its scientists.

Welcome from the Chief Scientist and Chief Technologist

(Drs. Dan McCleese and Jonas Zmuidzinas)

Postdoctoral scholars are a critical part of the JPL's research community and it is our responsibility to ensure that your experience at the Lab benefits you and your career. You bring to JPL fresh ideas and enthusiasm with which to perform research in earth and space science and technology. Your contributions will help JPL to build on its status as one of the leading institutions of research worldwide.

The Lab's goals are most often addressed by space missions carrying advanced scientific payloads that involve hundreds of scientists, technologists, and engineers in universities, industry, and at NASA's Centers. The complexity of space missions requires integrating the collaborative effort of experts and researchers of great individual ability, supported by teams of researchers. Whether your research is performed within the context of a team, or as one of many of our researchers supported individually by NASA and other agencies, we recognize the task for postdoctoral scholars is to distinguish themselves in their field of study. JPL's postdoctoral advisors are keenly aware of the importance of maximizing the visibility of your unique contributions, including opportunities to publish and speak about your own work. We are confident that your experience at the Lab will be among the most exciting part of your career.

History of JPL and relationship with Caltech

For a reference with respect to JPL's history, check out Lab History –
JPL 101 at the external website http://www.jpl.nasa.gov/about_JPL/jpl101.pdf

JPL has its origins in the liquid rocket experiments conducted in the nearby Arroyo in association with Caltech's Guggenheim Graduate School of Aeronautics, in the 1930s. The dry riverbed wash, leased from the city of Pasadena, was chosen because it was sufficiently far enough away from residential areas for "the Suicide Squad" to test their occasionally explosive fuel mixtures and rocket motor designs. Consisting of graduate students and non-students alike, the combination of Theodore von Karman, Frank

Malina, John Whiteside Parsons, and Edward Forman (amongst others) established the modest beginnings from which the Jet Propulsion Laboratory would eventually take form. Interestingly, despite the name, JPL has never been greatly concerned with air breathing jet engines. According to von Karman, as rockets had such a bad reputation, they started referring to their work as "jets", for the jet-assisted booster rockets the early scientists and engineers were designing to assist heavily laden aircraft on short runways. The subterfuge stuck.

In addition to their work on jet-assisted takeoff, both before and during the Second World War, the Caltech group worked with the U.S. Army Air Corps developing short range ballistic missiles. This resulted in a series of progressively sophisticated rockets named Private, Corporal and Sergeant, relics of which can be seen near the center of the lab, behind building 83. Management of these projects also provided the laboratory valuable systems engineering experience, which it has continued to excel at to this day.

JPL's reputation for excellence received a boost with the construction of America's first artificial satellite. Owing to developments in rocketry, and the significance of the International Geophysical Year (July 1957 – December 1958), dual Navy and Army-JPL proposals competed to launch a scientific payload. In January 1958, several months after the launch of Sputnik 1 and immediately following the launch pad explosion of the Navy's Vanguard, JPL quickly assembled and launched Explorer 1 (aboard an Army-supplied Jupiter-C rocket incidentally). In addition to its other accomplishments, Explorer 1 radioed back information relating to temperature, micrometeorites and radiation environment, which were later to become known as the Van Allen belts. 1958 also saw the creation of the National Aeronautics and Space Administration (NASA), and later that year responsibility of JPL was transferred from the Army to the newly created NASA. Building upon the 1958 success of Explorer 1, JPL has sent spacecraft to the Moon and out across the solar system, reconnoitering all of the planets and many objects of interest in between.

Today, JPL is a NASA field center staffed and managed for the U.S. government by California Institute of Technology (Caltech). As such, it is a federally funded research and development center (FFRDC), akin to Los Alamos or Lawrence Livermore National Laboratories (which are funded by the Department of Energy). That makes JPL employees unique, in that they are not government employees but are instead employed by Caltech. In addition to telescopic facilities at Table Mountain, JPL also manages the Goldstone Communications Complex as part of the Deep Space Network on behalf of NASA and is involved in many more instrument projects exploring the near and far reaches of space.

Overview of the Lab / Orientation

The JPL "campus" is located at the northwest corner of Pasadena, at the foot of the San Gabriel Mountains. JPL is often referred to by its inhabitants as "the Lab" or "the Laboratory." JPL's parent institution is Caltech and is located in central Pasadena, bordered roughly by Del Mar Ave. on the north, Hill Ave. on the east, California Blvd. on the south and Wilson Ave on the west. Caltech is often referred to as "Campus."

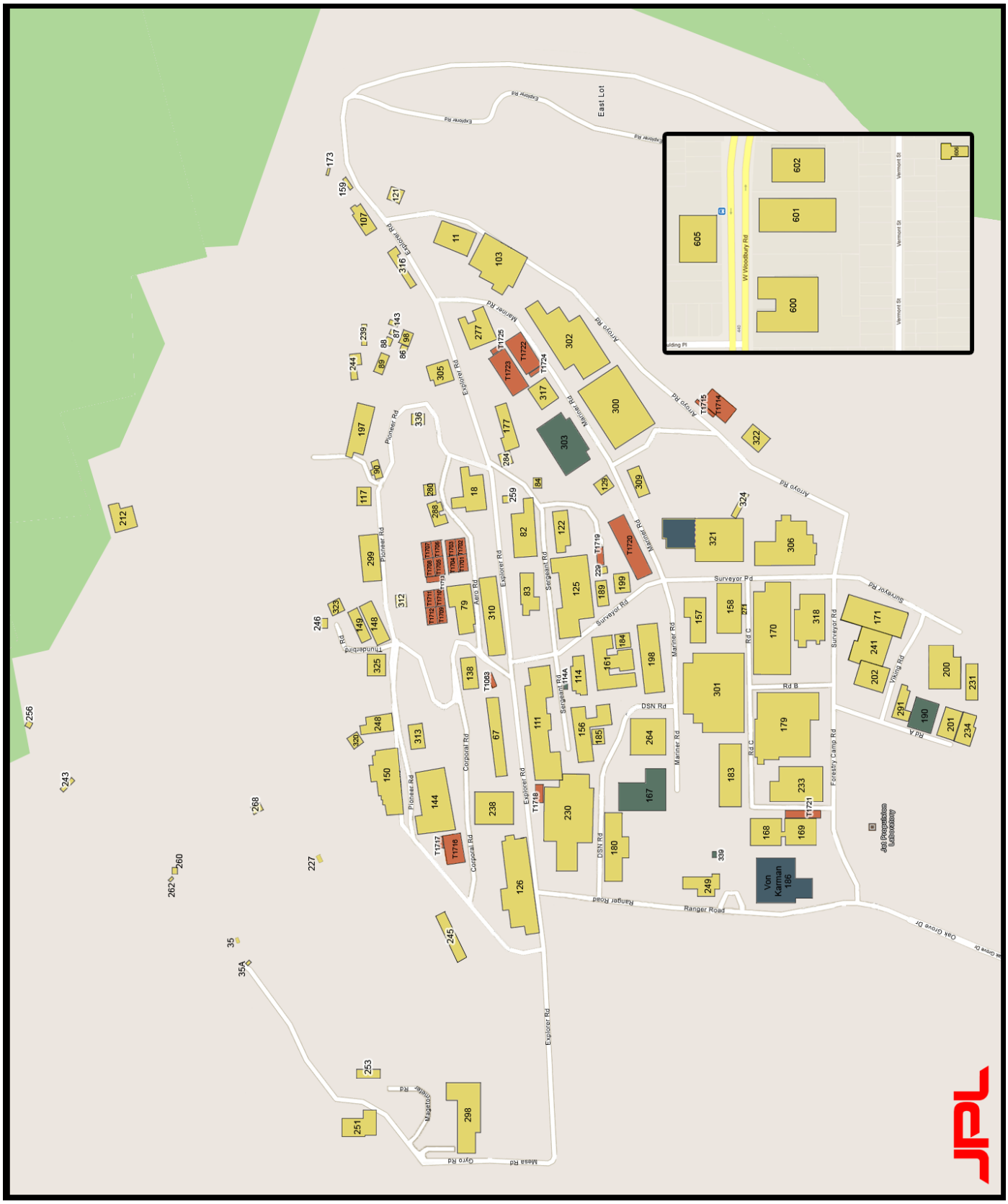
JPL is a small city with over 6,000 daily inhabitants. The buildings include offices, laboratories, cafeterias, spacecraft and materials assembly and testing facilities, machine and carpentry shops, services such as Security, the Fire Department, and First Aid, and even the Credit Union (essentially an employee owned bank, see "Credit Union" section). The Laboratory is open 24 hours a day, 365 days a year. Access with a security badge is available at all times.

The JPL environment is a mix between an academic campus, an aerospace company, and a government installation. The natural setting against the mountains is quite nice and wild deer occasionally roam the site, along with raccoons, skunks, feral cats, and other wildlife. The dress code ranges from relaxed to formal, depending on job responsibilities. Most postdocs tend to gravitate to the relaxed end of the spectrum.

JPL is a secure location, surrounded by a security fence and substantial monitoring equipment to prevent illegal access. Persons coming on Lab must have a valid security badge or must be there visiting people on Lab, who will arrange with Security for their visit. In general, the buildings on the Lab are open and not individually secured. However some buildings, such as the Space Flight Operations Facility (Building 230) do require special badge access because of the sensitive flight operations functions within. Some floors in other buildings may be similarly restricted when they house active flight teams for missions. Also, there is a limited amount of classified work on Lab and those areas are also off limits to anyone but authorized personnel. In general, you will not come into contact with any of this unless you are working with an active flight team.

The buildings at JPL are all numbered in the order that they were built. Therefore, knowing the number of a building does not necessarily help with finding its location. Interactive maps are available on-line at: http://imaps.jpl.nasa.gov/map.php (please note this URL is only accessible from JPL's internal network)

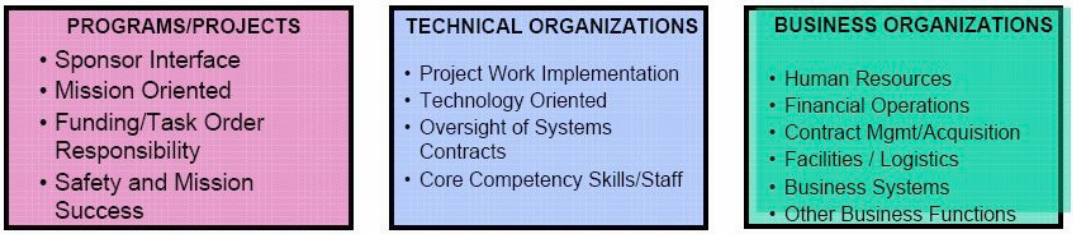
Map of JPL- Need to update this one which shows Bldg 321.



JPL Internal Organization: Directorates and Divisions

There are three primary organizations at JPL:

- Program/Project Offices (4x, 6x, 7x, 8x, & 9x)
- Technical Organizations (3x & 5x) – a line organization
- Business Organizations (1x & 2x) – a line organization



Projects have organizational structures, but, unlike line organizations, projects have clearly defined periods of performance. The project is set up as a temporary organization comprised of individuals across a broad section of JPL functional organizations. After a project has completed its mission, it is closed out and the project organization is dismantled. A project organization is mission or product oriented.

The technical and business organizations are line organizations with a hierarchy of Directorates, Divisions, Sections, and Groups.

- Directorate
  - Denoted by the first 1 digit of the organization number. For example, 3x or 3000 is the Engineering and Science Directorate. Charters may be found in "JPL Rules!", accessible from JPL's internal network (http://rules.jpl.nasa.gov/).
- Division
  - Denoted by the first 2 digits of the organization number. For example, 3200 is the Science Division (informally called "Div 32").
- Section
  - Denoted by the first 3 digits of the organization number. For example, 326 is the Astrophysics and Space Sciences Section.
- Group
  - Denoted by the 4 digits of the org number. For example 3266 is the Evolution of Galaxies Group.

The technical and business organizations are line organizations where each unit is made up of groups of individuals that perform similar tasks or specialize in a particular discipline. The line organizations are people oriented. When elements within these line organizations are deployed to a project to accomplish a mission, the result is a matrix organization. A matrix represents the blending or partnering of the line and the project.

Functions

- Programs and Projects have primary interface with sponsors and customers, and have primary responsibility for meeting commitments. Unlike the other two organizations, Projects have a clearly defined period of performance.

- Technical Organizations have responsibility for implementing project and task work, establishing technical centers of excellence, and ensuring availability of required skills.

- Business Organizations provide crosscutting support in the areas of human resources, finance, project accounting, program and project business management, acquisition, logistics, facilities, business computer systems, prime contract management, technical information/documentation, ethics, environmental affairs, and other business functions.

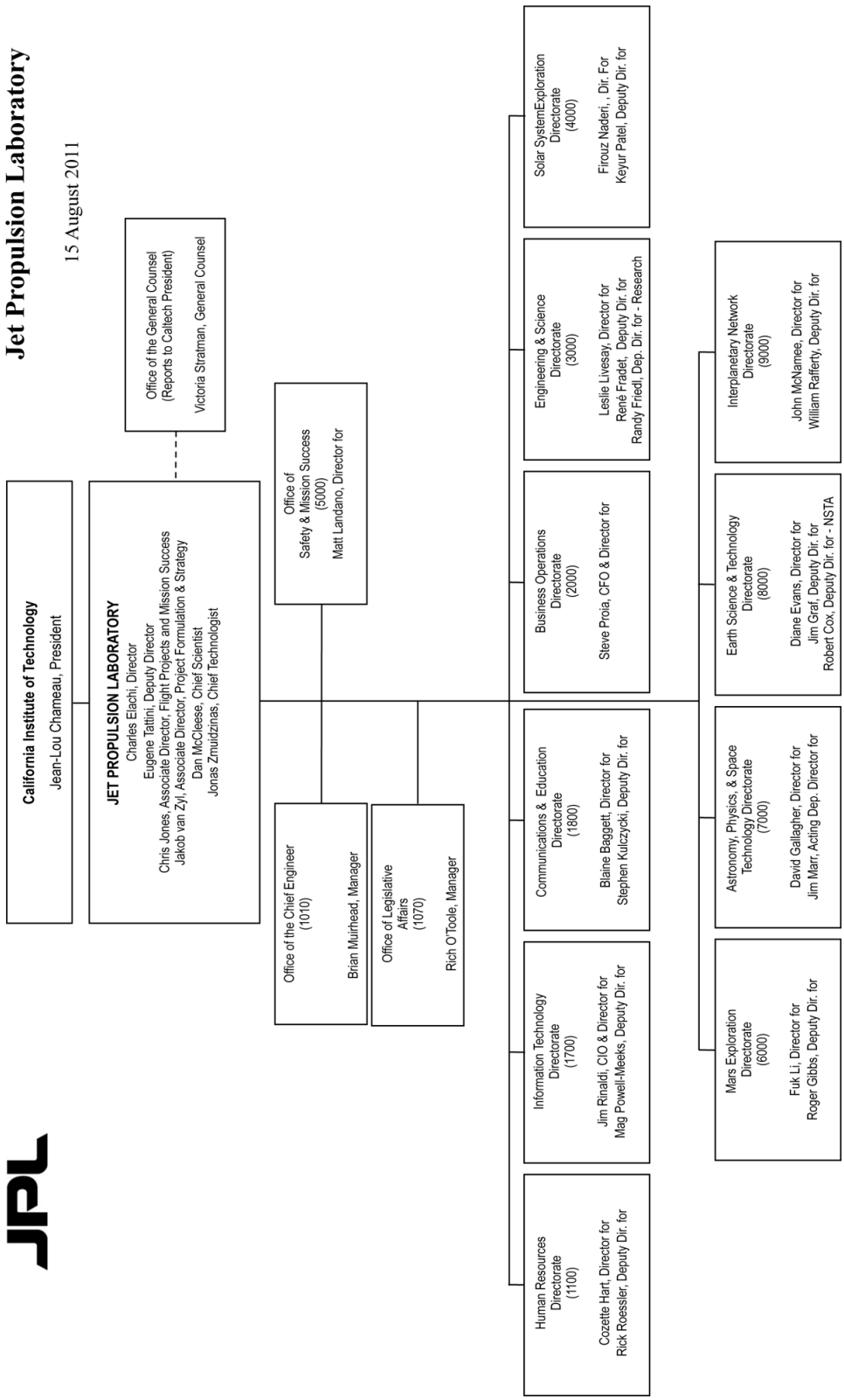
ESD - Engineering & Science Directorate (or 3x)

Most postdoctoral scholars and graduate students will find themselves in the Engineering and Science Directorate (ESD, see organizational chart on the following page). It is also known as the "doing" organization as opposed to the "programmatic directorates" that manage the programs that fund the mission work that JPL does. Here are the divisions that are located in this directorate:

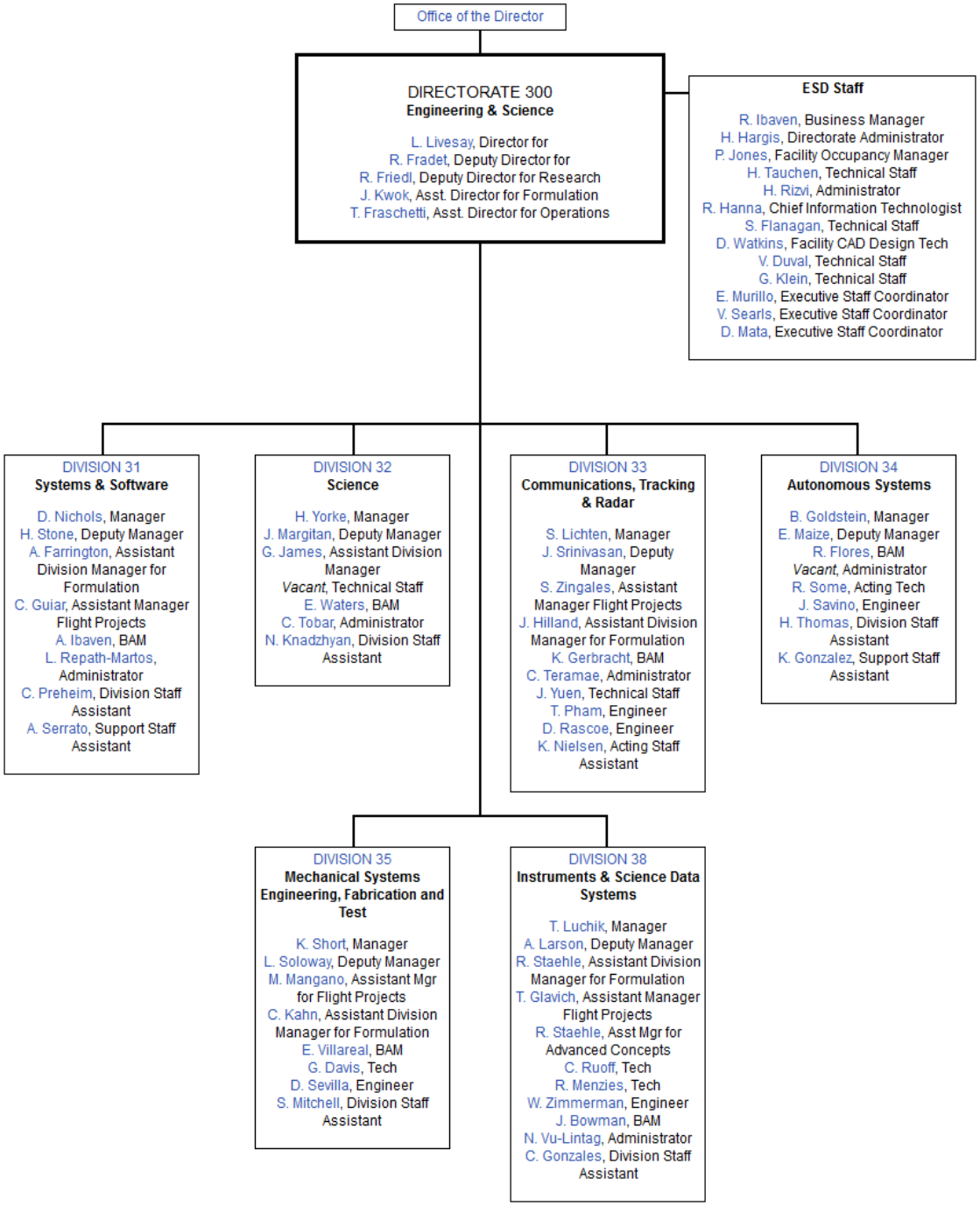
310 Systems & Software
320 Science
330 Communications, Tracking, and Radar
340 Autonomous Systems
350 Mechanical Systems Engineering
380 Instruments & Science Data Systems

The following two pages present an organization chart and pictures of the 3x leaders. For updates to the organizational chart, see: http://eis.jpl.nasa.gov/laborgcharts/ (please note this URL is only accessible from JPL's internal network).

Laboratory Organization Chart – Is there a newer version?



Engineering and Science Directorate Organization Chart – need newer version



Postdoctoral Programs

There are 3 main Postdoctoral Programs at JPL:

Program:	**Caltech Postdoctoral Scholars at JPL Program**
Description:	Exposes individuals to projects at NASA and encourages joint sponsorship and collaboration between Caltech faculty members, JPL scientists and NASA Headquarters. Appointments are awarded for a minimum of 1 year and may be award a max of 3 years.
Eligibility:	Candidates must have received their PhD within the last 5 years.
Application Deadline:	On-going
Link:	http://postdocs.jpl.nasa.gov

Program:	**JPL Postdoctoral Associates Program**
Description:	Opportunities for research positions that provide significant training for the nation's future scientific and technological leaders. Appointments are awarded for a minimum of 1 year and may be award a max of 3 years.
Eligibility:	Candidates must have received their PhD within the last 5 years.
Application Deadline:	On-going
Link:	http://postdocs.jpl.nasa.gov

Program:	**NASA Postdoctoral Program (NPP)**
Description:	This program is for recent graduates as well as established engineers and scientists to work at JPL. It provides the opportunity for concentrated research on an annual basis, renewable up to two additional years. This program is administered by ORAU (Oak Ridge Associated Universities) in Tennessee. Prior to 2006, this program was administered by the NRC (National Research Council).
Eligibility:	Visit ORAU's Eligibility and Conditions of Award page
Application Deadline:	Nov 1, Mar 1, and July 1
Link:	http://nasa.orau.org/postdoc/

Please contact the Postdoc Office at postdocs@jpl.nasa.gov for any questions about the programs.

Research Advisor Roles/Responsibilities

The role of a research advisor will require a considerable commitment of time to ensure that both the advisor and the postdoc gain the maximum benefit from the postdoc's time spent at JPL. The research advisor should regard him/herself as a mentor, helping to develop the postdoc's potential so as to help advance the postdoc's career.

Communication between the advisor and postdoc are essential, especially prior to the postdoc's arrival at JPL. The advisor and postdoc should work together in advance of the postdoc's arrival to develop a written research plan that encapsulates their mutual goals and research interests.

The advisor should also transmit specific information about the postdoc's work environment, such as:

- How large is the research group and what is the postdoc's role in the group?
- To whom does the postdoc report?
- What tasks will the postdoc be working on upon arrival?
- What advanced reading can the postdoc do to help get started on his/her work?

Upon the postdoc's arrival, the advisor should be prepared to spend considerable time with the postdoc familiarizing him/her with the work environment and facilities, introducing the postdoc to colleagues, especially fellow postdocs and grad students, and also introducing the postdoc to line management (group, section) and to the staff assistant responsible for the postdoc. Outline clearly what to expect of the postdoc and his/her role in the research group. A short walking tour of JPL indicating where various facilities (von Karman auditorium, the cafeterias, etc.) and services (the Library, Graphics, etc.) are located is helpful to orient new arrivals. The advisor also needs to allow the postdoc to take time to handle various personal matters such as finding a place to live in the area, buying a car (if desired), etc.

The advisor needs to provide the postdoc with regular feedback as to their progress and standing in the research group. Positive reinforcement of good work will pay large dividends in the future. Early attention to potential problems can nip them in the bud before they become major impediments to the research work.

As part of the mentoring process, the advisor should look for opportunities for the postdoc to present their research results, either at JPL or at scientific meetings. The postdoc should be encouraged to give an informal talk on their previous research soon after they arrive at JPL. For example, this could be a brown-bag lunch presentation. This will help familiarize the JPL community with the new arrival. In the course of their work at JPL, postdocs may have an opportunity to give further informal talks and reports, including the Postdoc Seminar Series.

Similarly, attendance at scientific meetings and training schools or workshops, provide additional opportunities for the postdoc to grow into the research role. Wherever feasible, advisors are encouraged to provide such opportunities to their postdocs.

Generally, if your advisor will be absent or on leave for any extended periods of time, he or she will set up appropriate temporary supervision for you.

The advisor needs to apprise postdocs of their situation well before renewal dates approach. If a postdoc is going to be renewed, then preparing and submitting the necessary paperwork in advance of any deadlines will ensure a smooth transition to the following year. For renewals, the advisor may need to examine his/her own research funding to ensure that the funds needed to pay for the renewal are available (if needed). If the postdoc is not going to be renewed, then he/she needs to know this as soon as possible so that he/she can begin searching for a new position. If the advisor decides not to renew a postdoc, it is recommended that the advisor explain to the postdoc the reasons for the non-renewal. All renewals require approval from the Office of the Chief Scientist.

At the completion of a postdoc's time at JPL, the advisor should provide assistance in helping the postdoc move to the next stage in their career. This may be another postdoctoral position, a research or teaching position, or even a permanent position at JPL. As with everything, advance planning can greatly ease this transition and help place the postdoc in the most opportune position. Continued, mutually beneficial collaborations with postdocs after they leave JPL are encouraged.

Postdoctoral Roles/Responsibilities

The postdoc is considered a responsible member of JPL's research community and is expected to comply with his or her postdoc program's policies and procedures as well as JPL's.

The postdoc should work to develop an appropriate, professional working relationship with the advisor, including the scheduling of regular meetings.

The postdoc should discuss with the advisor the type of guidance and comment on which he or she finds most helpful.

It is the postdoc's responsibility to seek out and follow the safety regulations relevant to his or her research, seeking clarification from the advisor or elsewhere as necessary.

The postdoc should not hesitate to take the initiative in raising problems or difficulties, however elementary they may seem. He or she should ensure that any problems regarding the project are brought to the attention of the advisor, the JPL Postdoctoral Office and line management so that appropriate guidance may be offered.

Research postdocs should maintain systematic records of all that has been attempted and accomplished with respect to their research. The postdoc will also want to keep a record of all formal, scheduled meetings, documenting what has been discussed and decided.

The postdoc should recognize that the advisor may have many competing demands on his or her time.

The postdoc should be aware that the provision of constructive criticism is central to a satisfactory supervisory relationship, and should always seek a full assessment of the strengths and weaknesses of his or her work.

Research postdocs are encouraged to make full use of the facilities and opportunities for career development that the unique research environment at California Institute of Technology and JPL provide.

One frequently asked question is whether or not postdocs can write grants. The official JPL policy is that postdocs CANNOT be principle investigators on grants. See JPL Rules document ID 52792, available at http://rules.jpl.nasa.gov/ (please note this URL is only accessible from JPL's internal network).

> "6. Postdoc appointees will not be named managers or principal investigators on grants or contracts; however, co-investigator status will be permissible if it does not entail commitment of Laboratory resources or an implied institutional relationship beyond the end of the postdoc appointment period."

This prohibition on postdocs being principle investigators on research grants is a double-edged sword. First and foremost, this policy is in place for the protection of postdocs. Postdocs are already funded and they should be allowed to conduct unencumbered research without having to worry about securing additional funding. However, especially toward the end of a postdoctoral appointment, postdocs may choose to further their professional development and attempt to write a research grant. This can be done with postdoc as a co-investigator provided that another full-time JPL employee serves as the principal investigator. Grant writing represents a significant time commitment and should only be done in close consultation with the advisor.

The postdoc should ensure that he or she allows adequate time for writing up a report of their work. Particular attention should be paid to documenting research methods and file locations. See the section of this handbook entitled "Conclusion of Your Postdoctoral Position" for further information regarding the possibility of transitioning to a more permanent position at JPL.

Where to go for Help?

For personal problems relating to stress, family issues, work, or marital counseling, JPL Occupational Health Services runs an Employee Assistance Program that can be of assistance in this regard (visit http://hr.jpl.nasa.gov/eap/ on JPL's internal network). The Employee Assistance Program can be reached at 818-354-3680 for a confidential consultation. This program is also available to the family members of postdocs.

For scientific or technical problems, postdocs should try the following people in this order:

- Advisor
- Group Supervisor/Business Area Manager
- JPL Postdoctoral Office
- Section Manager
- Division Manager
- Office of the Chief Scientist and Chief Technologist

Questions regarding ethics may be taken to the Ethics Office: http://ethics.jpl.nasa.gov.

Making Arrangements for Your Travel and Arrival

Note that this section applies travel funded by the advisor or JPL – for travel with NPP funds, all travel arrangements must be made separately through ORAU (http://www.orau.org/travel/). Travel regulations and procedures are briefly abstracted here, but the full procedures are discussed in much more detail at the JPL internal website http://travel.jpl.nasa.gov/indexTR.cfm .

JPL has a Travel office and local resources (section staff support) to assist in arranging the postdoc's travel. It is best for postdocs to work with his or her local support staff early in the planning stages of any trip, as they know the formal rules and the practical necessities of the process. Roughly speaking, the traveler works with a staff assistant to develop a travel plan, and the staff assistant secures Section approval by submitting a Travel Request to the Travel office. The staff assistant will assist with the reservation process as well. In order to obtain the lowest available airfare rate and the best seats for both foreign and domestic travel, it's important to make travel reservations as early as possible. Airline tickets will be purchased directly by JPL, but the traveler's personal credit card will be used to guarantee hotel and rental car reservations. A traveler profile can be submitted on-line at https://travel.jpl.nasa.gov/Secure/ps_profileLogin.cfm (using the JPL internal network), and these individual preferences will be kept on file by the travel office for use with future reservations.

A note about combining business and personal travel. According to the JPL Travel office, "The booking of personal travel in combination with JPL business travel is provided to the Traveler as a **courtesy**. For this courtesy to be extended the Traveler must agree to comply with the following…" (Full conditions are listed on the internal travel website http://travel.jpl.nasa.gov/indexTR.cfm). A key condition of combination business/personal travel is that the full cost of airfare is charged to the traveler's personal credit card by the JPL Travel office. Thus, combining business and personal travel can pose a financial risk to the traveler (and JPL therefore strongly recommends that travelers arrange their personal travel independently).

Some useful hints in using JPL Travel Reservations: It is often best if the traveler researches and chooses the flights he/she would like to use, and provides that information when making reservations. This includes which of the local airports to use, e.g., LAX, Burbank, Ontario. JPL currently has a contractual arrangement with United Airlines for reduced fares so that is the airline of choice for many domestic trips. However, there is some latitude in selecting carriers, flight times, airports, etc., the determining factor being that flight costs cannot exceed some standard fare determined by the Travel Office. The ultimate airline selection made by the Travel Office will generally be based on the lowest airfare, and if available, a non-refundable ticket will be purchased. If the traveler insists on a more expensive ticket, then the difference must be paid by the traveler.

Similarly, if the traveler has a hotel preference, such as a designated conference hotel, it is important to provide that information when making reservations. Maximum hotel reimbursement costs and allowable meal reimbursement rates are specified by U.S. Government per diem tables (available through the U.S. General Services Administration http://www.gsa.gov/); it is important to stay within these limits. Higher rates are permitted in some cases, but it is very important then that the reservations be made by the Travel office, rather than by the traveler.

When travel is completed, the traveler submits an online Expense Report (available internally from the EBIS website's Travel tool at http://ebis.jpl.nasa.gov) to receive reimbursement for expenses against his/her credit card and for other expenses incurred on the trip (e.g., per diem for lodging, meals and incidental expenses, transport to and from airports, registration fees for conferences, etc.). Expense reports should be submitted within 30 calendar days from the completion of travel.

All foreign travel, both programmatic and non-programmatic, requires approval from the State Department as well as concurrence from NASA Headquarters. A complete travel package must be received to the Foreign Travel Office (FTO) at least 18 working days prior to departure. The FTO web site http://fto.jpl.nasa.gov (please note this URL is only accessible from JPL's internal network) provides information and instructions.

NPP's have separate travel regulations administered by ORAU and do not need to submit a package to FTO except for when the NPP uses his or her advisor's JPL funds for the trip(s).

All postdocs are required to comply with ITAR Document Review and Export Control regulations when presenting material abroad (e.g., at conferences, workshops, etc.). More information about export control is available at http://exportcompliance.jpl.nasa.gov (JPL internal site).

One of the hard copy documents required is a clearance of any abstract or paper to be presented during the foreign travel (see "Document Review" section below). Obtaining a clearance typically takes at least a week, possibly much longer if sensitive, export controlled technologies are involved (the definition of an export controlled technology can be quite broad). Thus, it is best to begin preparing the paperwork for foreign travel well in advance of the departure date, by at least a month or more.

A related required form is 2785 (available from the internal website http://eforms.jpl.nasa.gov/), Author Certification for Oral Presentation. This is simply a certification by the author that the actual talk given will not disclose technically sensitive information or contain any material (e.g., obscenity, libelous statements) that would be embarrassing to JPL or Caltech. Alternatively, the traveler can provide a complete copy of their pre-prepared talk for clearance, but this usually slows down the clearance process.

Unlike domestic travel, foreign travel forecasts must be provided on a quarterly basis through the Travel Forecast web page https://jpl-apps.jpl.nasa.gov/ftf/ (only accessible from JPL's internal network). Some meetings, whether domestic or foreign, are designated as "heavily attended" by JPL, and they must be similarly forecast. The forecast approval process can take up to 3 months (forecasts are only evaluated quarterly) so it is advisable to forecast any foreign travel or heavily attended conferences well in advance.

Document Review

Documents must go electronically through the Unlimited Release system at https://unlimitedrelease.jpl.nasa.gov (an internal only website). No hardcopies can be submitted. Once the document is submitted it will cycle to the author's group supervisor for technical and ITAR review then to the author's section manager for organization

review. The record then flows to Document Review Services for review and clearance. Please allow 2 weeks for the review cycle, one week for author's line management review and one week for Document Review. For more detailed information go to the internal website at http://documentreview.jpl.nasa.gov. For questions regarding the submission process call 4-1141, the Document Review Clerical Desk.

Copyright of JPL Documents

The copyright procedures followed at JPL are closely related to the document review process, and the Document Review office will help with those procedures. JPL policy requires that the copyright form be sent unsigned to Document Review for processing: they will issue a custom form that reflects the fact that Caltech is the copyright owner of any JPL material produced as "work for hire." Follow the specific instructions of JPL Document Review rather than the general instructions from the journal.

Patents from JPL Work

The 1330 document review form (available from the JPL internal website http://eforms.jpl.nasa.gov/), has a place for the author to declare that the manuscript contains new technology, by linking the effort to a NTR, or New Technology Report. Declaring such content will lead to an inquiry in which the new technology is evaluated for possible patent value. It may also lead to inclusion of a description of the content in the magazine Tech Briefs, with a monetary award for the author(s). Patent rights are held in the first instance by Caltech, but if they opt not to pursue those rights that option may be pursued by the author/inventor. The Caltech patent office will contact the author(s) for additional information needed to file; normally the original manuscript in question provides the primary exhibit.

Information Technology (including computer hardware and software)

JPL contracts with an outside entity, Lockheed Martin Information Technology (LMIT), handles procurement, installation and maintenance of desktop computers. The advisor is generally responsible for providing computer resources to the postdoc. Advisors are strongly encouraged to make hardware and software arrangements for incoming postdocs at least a month in advance of their arrival.

Computer hardware is leased from LMIT rather than purchased outright. The main entry point to assistance with all computing resources at JPL is the Help Desk, reachable only by phone at 4-HELP (818-354-4357).

The main IT website at JPL is http://jplit.jpl.nasa.gov (please note this URL is only accessible from JPL's internal network). Links to manage individual passwords, obtain remote access, e-mail and telecommunications are all grouped together on this page.

Some desktop software is provided by JPL via site license to all lab computers. A list of available site-licensed software can be obtained with download instructions at http://jplit-lm.jpl.nasa.gov/Catalog.S/CatalogCore.asp (JPL internal only website). Other software is available either at a monthly fee (such as ArcGIS) or in some cases free of charge (such as Matlab) through the CAE (Computer-Aided Engineering) Tool Service (JPL internal website http://cae.jpl.nasa.gov). Additional software not available in the first two options can be purchased by the advisor through the iProcurement purchasing system, which is accessible internally through the New Business Systems web portal at https://ebis.jpl.nasa.gov. First-time users will need to register to create their EBIS accounts (new user requests take 24 hours to process). Purchases, subject to approval by the advisor, are charged to a designated project and task number provided by the advisor.

Specific computer software and hardware needs should be discussed with the advisor before the postdoc arrives on Lab to help ensure postdocs can begin work when they arrive.

Housing

If you want to live walking distance from the Caltech Campus, a good area would be the square: Walnut (north) - Sierra Madre Blvd (east) - California (south) - Los Robles (west). Also, there are a great number of towns and cities close to JPL (besides the local cities of Pasadena and La Canada Flintridge) that provide reasonably affordable rental housing for postdocs and other visitors. Note that "reasonably affordable" is a relative term, as housing and rental prices vary from city to city.

The average 1-bedroom apartment in and around Pasadena is $1250 - $1700 per month, excluding utilities. Try to find an apartment which is on "rent control." This way, your rent amount will stay relatively the same after your lease is over and you are ready to renew or go month-to-month. Leases are generally for 12 months. There's usually a deposit and/or extra rent for pets. Some cities local to JPL include:

- Altadena (north of Pasadena against the mountains),
- Sierra Madre (east of Altadena),
- South Pasadena (south of the western half of Pasadena),
- Alhambra (south of South Pasadena),
- La Crescenta (west of La Canada-Flintridge) and
- Montrose (south of La Canada-Flintridge)

If you want to venture out of the Pasadena area, some other cities are:

- Los Feliz (southwest of JPL—this is in the city of Los Angeles)
- Eagle Rock (southwest of JPL – this also in the city of Los Angeles)
- Glendale (southwest of JPL – this is its own city. **NOTE:** This city prohibits smoking, so if you're a smoker, don't live here.)
- Burbank (southwest of JPL—this is its own city as well)
- Downtown Los Angeles (southwest of JPL – this is the farthest I would advise you to look. Anything beyond this would be an insane drive!)

If you want to live near the beach, you will need to look into Venice Beach, Santa Monica, Manhattan Beach, Redondo Beach, Hermosa Beach, Malibu, and San Pedro. All

of these areas are quite far from JPL. You should map them online and check the distance. You will also be driving with traffic. However, if you really have your heart set on living by the beach, you may want to consider "carpooling." You will need to find a "carpool buddy." You can check this out now here . Or you can also contact the JPL Rideshare Office (link is internal only) for information on getting into a carpool.

To help you with your housing search, here some popular rental listings:

- Caltech Housing - The wait time is 3 months. You may want to contact them soon to see if they have space.
- The Caltech Marketplace
- Fuller Seminary – This is a private university in Pasadena that house Caltech affiliates when there's availability. 700 Locust Street, Pasadena, California 91101 Phone: 626.204.1100 or 1.800.235.2222 ext. 5545 Fax: 626.204.1180 guestcenter@fuller.edu. Rental cost for a one fully furnished bedroom with equipped kitchen, bathroom, parking, internet, TV, electricity, etc.: $ 1,800 per month.
- William Carey International University - This is a private university in Pasadena that house Caltech affiliates when there's availability. 1539 East Howard Street, Pasadena, CA 91104 Manager of Property Services: Joe McCrillis 626-398-2415 info@aylwardhouse.org . It's a dormitory place with a cafeteria. The dorm style rooms on campus are in a building setting. Usually each building has at least two floors where the ladies occupy the top & men the lower level rooms. Rooms are double (shared) or single. The rooms for tenants have a bed and a chair & desk. The cost per month is between $ 745 and $ 805.
- Caltech Postdoc Association – They have weekly listings. To be added to the email listing, please go here .
- JPL also has an internal Classifieds listing.

Fee-based rental listing service:

- Westside Rentals
- Rent.com
- For Rent.com
- Realtor.com

Child Care - The Child Educational Center

The Child Educational Center (CEC) opened its doors on September 17, 1979 to serve the growing need for the education and care of young children of working families at JPL, Caltech and the surrounding community. Their goal is to facilitate the development of children and support all families, in whatever form they may take. They view all CEC community members (children, parents, and staff), as engaged in their the developmental process and deserving of respect, loving care, and an optimal learning experience.

CEC Contact info:

External website: http://www.ceconline.org
Office phone: 818-354-3418
Email: cec@ceconline.org

The CEC is a non-profit, full-day child care center established by and supported in part by the California Institute of Technology and its operating division, the Jet Propulsion Laboratory. The CEC has been continuously accredited by the National Association for the Education of Young Children since 1988 and received its 5th continuous re-accreditation in June, 2003.

The CEC's school-age Oak Grove and the Caltech locations provide after-school programs beginning at 11:30 am, while the 3 La Canada sites begin providing care at 7:00 am.

- Oak Grove (140 Foothill Boulevard, La Canada)
- Caltech (250 and 256 South Michigan, Pasadena)
- Paradise Canyon Elementary School
- La Canada Elementary School
- Palm Crest Elementary School

The CEC also offers a Summer Camp that operates from mid-June to the end of August. Children who have completed kindergarten up through sixth grade are eligible to attend. Field trips, mini-courses, drama, outdoor sports and games, creative arts and music are central components of the curriculum, which is designed to be relaxing and educational.

JPL Parking

JPL Parking Policies apply to employees, contractors, and non-JPL personnel who are required to park in JPL parking lots and/or drive on Laboratory roadways. For more information on JPL Parking Policy see JPL Rules Document http://rules.jpl.nasa.gov/cgi/doc-gw.pl?DocID=56883 (internal website only).

Generally, postdocs who drive to work will be parking in the JPL parking lots that are considered "off-Lab" parking (these are the East & West Lots). On-Lab parking is only available to postdocs who:

- Drive a motorcycle,
- Participate in a carpool or a vanpool (see internal JPL website http://rideshare.jpl.nasa.gov for more information),
- Have a medical reason that requires parking on-Lab, or
- Drive On-Lab after hours (after 4:30pm – 4:00am on work days, all day on weekends, holidays, and RDO Fridays).

Parking on lab during Regular Days Off (RDO Friday) is allowed, but limited to silver, blue, green, underneath Bldg 301, and unassigned spaces only, on a first-come, first-served basis.

Obtain a Phone or Cell Phone

A landline telephone is typically installed in the office for the postdoc's use. If the postdoc requires a cell phone, he or she must obtain approval from his or her advisor. Once approved, the postdoc can order a cell phone by visiting http://jpltel.jpl.nasa.gov/cell/ (URL only accessible from JPL's internal network) and place the order online.

Learn about JPL Voice Mail

Available throughout the Laboratory, voice mail is a voice store-and-forward service that allows sending and receiving voice messages 24 hours a day.

With voice mail, one can:

- Have all calls answered automatically.
- Record a personal greeting for callers.
- Send a message to one person or a whole group with just one call.
- Store messages received.
- Have messages transferred.
- Create a user-specific PIN.
- Access voicemail through the web.
- Send, receive and retrieve messages using virtually any Touch-Tone telephone.
- Access the system when away from the Laboratory

For repair, dial ext. 4-3900 and listen to the prompts.

To access voice mail when away:

- Extension 4-7330 (on Lab)
- 818-354-7330 (off Lab)
- 800-321-5660 (off Lab, toll free)

Dialing JPL Numbers While In Voice Mail

When calling JPL from a remote site to access voice mail, the user can exit the JPL voice mail system and dial a JPL phone number directly without having to hang up and dial again. From the voice mail main menu press * (star), then follow prompts. More information about JPL voice mail is available online http://jpltel.jpl.nasa.gov/voicemail/index.php (URL only accessible from JPL's internal network)

Key Requests

Key requests for offices, file cabinets, desks, etc. can be made on-line by visiting https://ops.jpl.nasa.gov/key_request/login from within the JPL network.

Access to JPL Network and Webfor Foreign Nationals

For all foreign nationals, your host (advisor, section staff, etc.) must submit a Computer Access Request (CAR) form before you can log on to any part of the JPL network while on lab or from a remote site.

Remote Access from Off-Lab

For persons who are not U.S. citizens or legal permanent residents (i.e. a foreign national – FNs), firewall software is required to be installed as a means of restricting access to controlled information. This manifests itself as remote access software, facilitating access to JPL's intra-net via, say, a web browser (BrowserRAS) which is available at http://intranet.jpl.nasa.gov. Two-Factor Authentication (TFA) is now required when remotely accessing the JPL Network and the Research Network via VPN and/or BrowserRAS. Additional information on TFA is available internally at https://dir.jpl.nasa.gov/tfa/.

On-Lab Access to the Internet: JPL SQUID Proxy Server

The JPL Squid Proxy provides Foreign Nationals access to a list of approved web sites which were previously available only through Limited BrowserRAS. By configuring any web browser to use the JPL Squid Proxy, all approved websites become available without having to log into Limited BrowserRAS.

For more information, please visit the Foreign National Toolkit at: http://fn.jpl.nasa.gov/ (URL only accessible from JPL's internal network).

On-Lab Access to the Internet: Researcher Network

The Research Network (RN) is a service allowing both JPL foreign persons and JPL US persons to exchange non-restricted data while providing JPL foreign persons with secure access to approved internal JPL resources.
The Research Network provides the following enhancements to the users:

- Full administrative access to their JPL computer
- No outbound firewall on their system
- Full access to all JPL publically available sites
- Full access to other hosts on the Research Network
- Full access to the Research Network from the JPL Intranet
- Transparent access to approved internal JPL resources through the Network Connect access client
- Transparent access to approved internal resources through Network Connect from the Internet (home and travel)

JPL Services

Laboratory Emergency Services Contacts

Can be located here on the JPL internal website:
http://eis.jpl.nasa.gov/jpl_directory/home/

Emergency Numbers

Oak Grove Site	911
ATSC Foothill Facility	9-911
Barstow Facility	9-911
Goldstone DSCC Facility	333
Table Mountain Facility	9-911
Woodbury Complex	9-911
Building 600	4-8961
Emergency Status for	800-303-4575
All Facilities	818-354-8601

Non-Emergency Numbers
For use during regular hours for Oak Grove:

JPL Fire Department	4-3311
Medical Services	4-3319
Plant Protection (Guards)	4-4160
Safety Operations	4-4711
Security and Protective Services	4-3536
Security Investigations Office	4-4918

After Hours:

Facilities Maintenance	4-4933
Other Services	4-3530

Use the "Emergency Status for All Facilities" number to know if JPL is open or has been closed due to high winds, storm conditions, or security reasons, etc.

Transportation

Bus Service (On-Lab Transportation)

Route maps and up-to-date information on the bus service can be found here: http://sec272.jpl.nasa.gov/buses_schedules.php (URL only accessible from JPL's internal network).

JPL on-lab buses run from 6:30am to approximately 7:10pm on normal business days. The morning and evening buses follow identical routes; the day bus follows a different route. For times, see schedules on the internal website at http://sec272.jpl.nasa.gov/buses_schedules.php.

Reminder: the buses that service the East lot will only pick up from designated stops out in the lot. Please stand at one of the bus stop signs according to time of day, marked **AM** for morning pick up and drop off and **PM** for the afternoon pickup and drop off.

There is no bus service on RDO Fridays!

System Procedure on riding buses and shuttle are located in JPLRules! (only accessible from JPL's internal network): http://rules.jpl.nasa.gov/cgi/doc-gw.pl?DocID=14212

Shuttle Schedules (Off-Lab Transportation)

The Woodbury shuttle runs between 7:10am and 5:29pm on normal business days. The shuttle stops, drops off, and picks up passengers near the driveway between buildings 601 and 600. The full schedule is available at http://sec272.jpl.nasa.gov/buses_schedules.php (only accessible from JPL's internal network).

Building 606

If you wish to catch the Woodbury shuttle back to JPL from building 606, please call the Transportation Dispatcher at 4-3172 or 3-2966. The driver will stop by building 606 and pick you up after the shuttle stops at building 601 according to the posted schedule. If you are going to building 606 from JPL, tell the driver when you are boarding. For questions or concerns, call extension 3-2966.

Campus Shuttle

The Campus shuttle runs between 7:45am and 3:59pm on normal business days. The shuttle runs from Oak Grove to and back from a stop at Caltech on California Blvd. in front of the construction area for the Linde+Robinson Laboratory for Global Environmental Science. Please note that the Campus shuttle is to be used for official business only.

The schedule can be located from JPL's internal network here:
http://sec272.jpl.nasa.gov/buses_schedules.php

There is not shuttle service on RDO Fridays!

Vanpool and commuting options

Vanpooling is one of the most cost and energy efficient forms of transportation available to commuters. Vanpools collect JPL-bound passengers at fixed points in the surrounding communities (i.e., a supermarket parking lot) in the morning and return in the late afternoon. Departure and return times vary by vanpool. Subsidies are available for JPL employees, only. Still, factoring in the high cost of gasoline and car maintenance, vanpool remains a cost-effective commuting alternative.

A list of vanpool coordinators is available through the Rideshare Office (http://rideshare.jpl.nasa.gov, an internal website). Make sure to contact the vanpool coordinator to see if there is room. Many vanpools offer part-time rider status where individuals can pay on a per-ride basis (typical costs ~$5-$7 per day). Full-time riders are given seating priority over part-time riders in the event the van is full. Additional information on carpools and other commuting options is available from the Rideshare JPL internal webpage.

Credit Union

The Caltech Employee Federal Credit Union (CEFCU) offers the California Institute of Technology family and its affiliate organizations eligibility to join CEFCU:

- Employees of the California Institute of Technology who work at the Campus, Jet Propulsion Laboratory (JPL), Mt. Wilson, Mt. Palomar, etc.;
- Postdocs who work at JPL
- NASA employees at JPL
- Employees of the Henry R. Huntington Library and Botanical Gardens;
- Independent contractors and documented volunteers who have worked regularly for the Caltech Campus, JPL, or The Huntington;
- Registered graduate and undergraduate students of Caltech;
- Members of the Caltech Alumni Association;
- Employees of the Carnegie Institute of Washington located in Pasadena and Palomar;
- Employees of CARA
- The Associates of the California Institute of Technology
- Faculty, administration and students of the Polytechnic School
- Immediate family of current members

The Credit Union offers its members the following services:

- Savings
- Visa Card
  - Student Visa
- Loans
  - Personal Loans
  - Vehicle Loans
  - Motorcycle and RV Loans
  - Real Estate Loans

For more information on the services offered, rates, and any other financial information about the Credit Union, you can visit the CEFCU online at http://www.cefcuonline.org/ or visit the Credit Union at the JPL campus in building 291, the Foothill Office located at 528 Foothill Blvd, La Cañada Flintridge, CA., or the Caltech Campus Office at 515 S. Wilson Ave. Pasadena, CA.

On-Lab ATM: There is also an ATM machine (Bank of America) located just south of the 167 cafeteria (Red Planet Café). There are also a few Cal Tech Credit Union ATMs located around lab.

Other Information - Useful Things to Know

Local Area Orientation

JPL is primarily located in the city of La Canada-Flintridge, a community in the greater Los Angeles area. Although JPL has maintained its Pasadena address thanks to the main gate and a handful of buildings residing within greater Pasadena, a recent re-districting of the area has meant JPL's new address is La Cañada-Flintridge. The JPL east parking lot is in Pasadena. JPL is located on the side of the Arroyo Seco, a dry wash which provides drainage for a major portion of the San Gabriel Mountains. The Devil's Gate Dam was built in the wash in 1920 to provide flood control and to serve as a reservoir for the city of Los Angeles. However the reservoir was drained in 1974 because of earthquake safety issues related to the dam design and construction. The Los Angeles basin is basically the entire area between the San Gabriel Mountains and the ocean. It is home to more than 13 million people, living in over 100 incorporated municipalities as well as unincorporated county areas. The original humans in the area were Hahamonga, Gabriellino, and Chumash Native Americans. The first European visitors were Spanish explorers and missionaries in the 18th century. The first mission in this area was the San Gabriel Mission, founded in 1771. Ten years later, members of that mission traveled about 10 miles west to found the city of Los Angeles. In the early 1900's Los Angeles' fine Mediterranean climate led to it becoming a home for the fledgling movie and aircraft industries, which have been mainstays of the local economy ever since. The area saw substantial growth during and after World War II. In recent years the ports of Los Angeles and Long Beach have become the largest center on the west coast for shipping to and from Pacific Rim nations.

The city of Pasadena was founded by a group from Indiana that bought the land to grow oranges. The city was formally incorporated in 1886. The name Pasadena is from the Chippewa Indians and means "crown of the valley." The city is probably best known for its annual Tournament of Roses Parade on New Year's Day, and the associated Rose Bowl college football game, usually played on New Year's Day. Pasadena is part of the continuous urban sprawl that is the greater Los Angeles area. However, the city is the major metropolitan area in the San Gabriel Valley, the region extending along the San Gabriel Mountains from Pasadena eastward. Pasadena has about 146,000 residents and has been growing rapidly in recent years.

Climate, Weather, Smog, and Natural Hazards

Southern California has a dry, Mediterranean climate. The rainy season normally runs from November to March, sometimes as late as May. Average annual rainfall is about 14 inches but can be highly variable from one year to the next. The spring months from April to June are often characterized by a thick marine layer of clouds that forms in the evening and doesn't burn off until well into the next day, if at all. This is referred to as "June gloom" and is something of a surprise to visitors expecting the area to always be sunny.

There is a very strong temperature gradient from the ocean to the base of the mountains where JPL is located. This results in Pasadena being warmer than the Los Angeles in the summer and colder in the winter. Summer highs can get to 100° F or more and winter

lows are rarely below 40° F. Also, high pressure weather systems over the western United States can create what is known as a "Santa Ana" condition in which hot desert air flows over the mountains and adiabatically compresses as it reaches lower altitudes. The Santa Ana's are very dry and very hot, and can occur almost any time during the year. A good side effect of the Santa Ana's is that they blow all the smog to the coast. During the summer months, monsoon conditions in the Gulf of California can bring very humid air into the area, making the summer heat even more unbearable.

Los Angeles' legendary smog has been greatly diminished over the years due to pollution controls on automobiles and on fixed sources such as power plants and businesses. "Smog alerts," when smog reaches dangerous levels are largely a thing of the past. Still, the Los Angeles basin is ringed by mountains and often has a temperature inversion in the air over it, which acts like a cap, preventing the smoggy city air from escaping. The typical onshore winds carry pollutants from the entire basin up against the mountains, which includes the Pasadena- JPL area. Thus, air conditions in the afternoons can be poor. For persons who exercise outdoors, it is best to avoid the afternoon hours until after sunset. Smog is worst in hot weather and in the summer months.

Because Los Angeles sits very close to the boundary between the North American and Pacific Plates, known as the San Andreas Fault (located on the north side of the San Gabriel Mountains), earthquakes are a natural though infrequent part of life here. Most earthquakes are too small or too far away to be noticed. Occasionally, noticeable quakes will shake buildings, perhaps knocking over books, dishes, and personal belongings. Major quakes are rare – the last one in the area was in Northridge (northwest of Pasadena in the San Fernando Valley) in 1994.

Because of advanced building codes, even major quakes usually result in only minimal injuries and loss of life, though property damage can be substantial. If you feel a quake, do not panic. If outside, get away from buildings and other structures that debris may fall from. If inside, stay where you are and get under a desk, or stand in a doorway, until shaking subsides. Do not attempt to run outside – many people are injured by running outside and being hit by falling debris.

JPL takes earthquake safety very seriously and will help to protect your office space. In particular, your bookcases will be anchored to the walls and shelves will contain straps to prevent books from flying off. If your bookcases are not anchored, ask for it to be done. Minimizing office clutter can contribute to your safety in a quake.

Wild fires are an occasional problem during the hot, dry summer months, until the rainy season starts in October or November. In general, these occur in the mountain areas or sometimes in hilly areas in Pasadena and the surrounding communities. They are not a problem for most residents in the cities and towns around JPL, unless you are living in one of the canyons or close to the national forest areas. Air quality can be compromised during major fires.

Employee Discounts on Local Goods & Services

Postdocs are eligible for numerous discounts afforded to all members of the JPL community. For a complete listing, please go to: https://js.jpl.nasa.gov/InsideJPLDocs/jpl_discounts2.doc (JPL internal website only).

- Also visit The Caltech Bookstore (http://www.bookstore.caltech.edu)
- 24 Hour Fitness - JPL Employee Special Discounts - bring your badge or paystub! Visit the new 24 Hour Fitness Club in Altadena at 2180 Lincoln Avenue (at the corner of Lincoln and Woodbury.)
- Advanced Wireless solutions -- Dr. Wireless offers the Caltech community and JPL employees discounts on personal wireless products (phones, PDAs, pagers), services and support: http://www.drwireless.com/caltech/caltech.html

Local Stores and Services

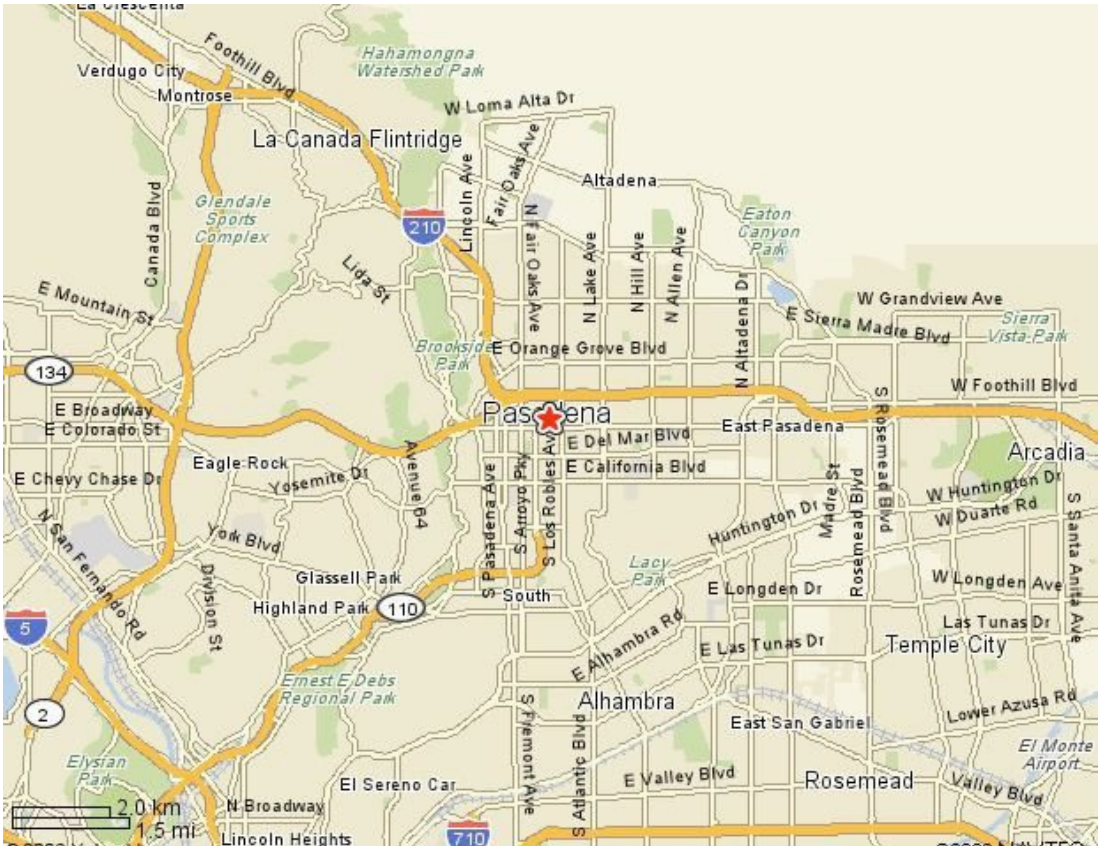
For the home:
There are several thrift stores in the area to purchase used kitchen and household items for your home:

- Used Merchandise Stores in Pasadena
- Pawn Shops - Pasadena
- Recycler
- JPL's The Universe
- Caltech's Baby Furniture and Household Equipment loans out kitchen, household and baby furniture to members of the Caltech community for a small fee. For information call (626) 584-9773.
- Check local newspapers for yard sale ads. Yard sales occur when individual or several families getting together to sell their used clothes and furniture, and other household items.
- Check the Caltech Postdoc Association's weekly email announcement for used items for sale (https://utils.its.caltech.edu/mailman/listinfo/cpa-announcement)

Social Security Card:

You will need to obtain a social security number (SSN). You will find this to be a requirement for applying for bank accounts, renting an apartment, applying for a driver's license, etc. Some institutions (like banks and leasing agents) sometimes allow transactions to occur pending the social security number. However, please be prepared that you might encounter some trouble with other institutions without having a SSN. The Social Security Administration recommends you wait 10 days after arriving in the United States to apply for a Social Security number. This will ensure Social Security can verify your documents. Click here to learn about the application process.

Pasadena Area Maps



What is a Sig Alert?

A “Sig Alert” is an advisory relating to “any unplanned event that causes the closing of one lane of traffic for 30 minutes or more”. Attributed to Loyd C. “Sig” Sigmon, the practice of alerting drivers to backed-up traffic was meant to alleviate the frequency and severity of traffic accidents. Note that Caltrans numbers each freeway lane from left to right (but not including the carpool lane). The “fast” lane is the number 1 leftmost, non-carpool lane.

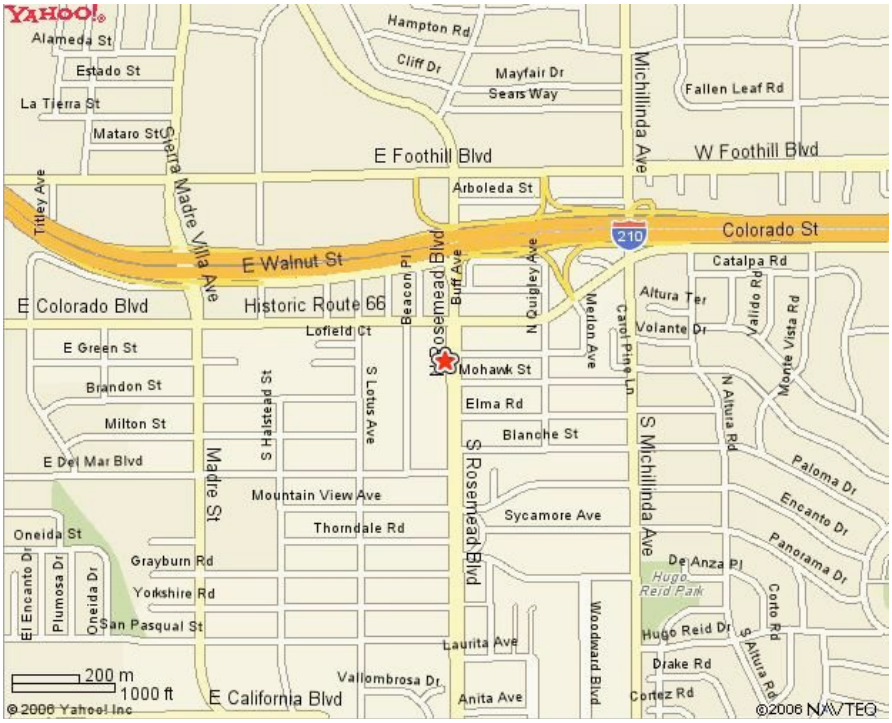
Obtaining a Driver License

Postdocs who have a license from another different state than California must obtain a California driver’s license within 10 days of arrival.

If you have not had a driver’s license before and would like to obtain one, you must contact the California Department of Motor Vehicles (DMV). The DMV will administer written and driving tests before they issues a license. You can find out more about how to obtain a license for the first time at: http://www.dmv.ca.gov/dl/new_driver.htm.

Local DMV Locations

Pasadena DMV



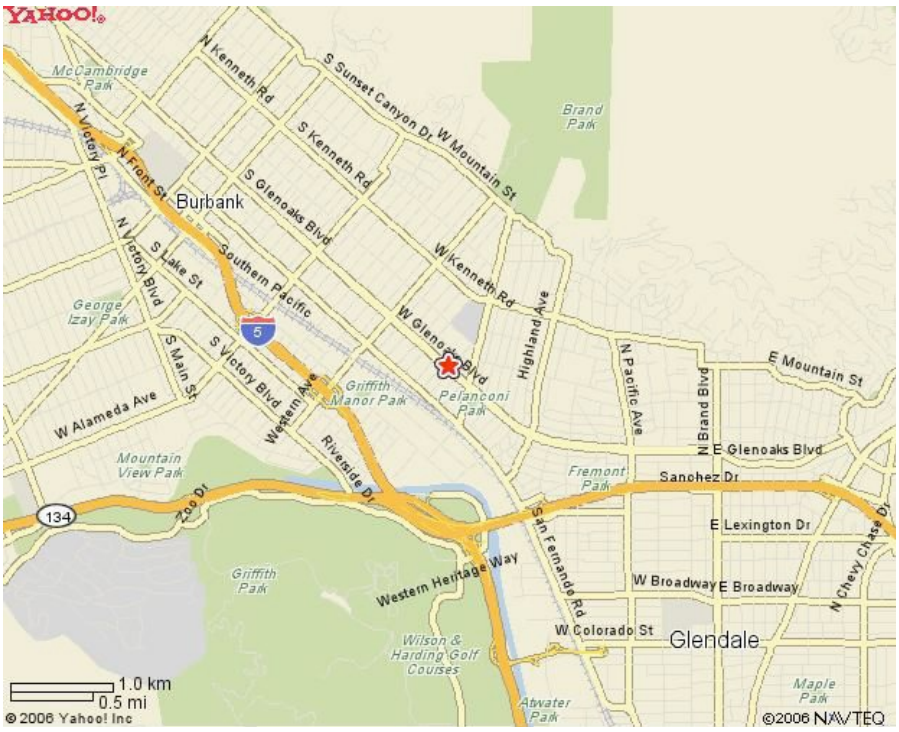
Location
49 S. Rosemead Blvd
Pasadena, 91107
(800) 777-0133
Street Map

Hours
Mon., Tues., Thurs., Friday:
8:00 AM -5:00 PM

Wednesday:
9:00 AM -5:00 PM

Closed Saturday and Sunday

Glendale DMV



Location
1335 W. Glenoaks Blvd
Glendale, 91201
(800) 777-0133
Street Map

Hours
Mon., Tues., Thurs., Friday:
8:00 AM -5:00 PM

Wednesday:
9:00 AM -5:00 PM

Buying a Car

Disclaimer: The information provided below (and elsewhere on our web site) is for general information purposes only. Caltech nor JPL do not directly endorse or recommend any of the organizations cited below or elsewhere. We have included them here for informational use for our incoming postdocs.

For advice about finding the right new or used car for you and managing the entire car-buying process, visit Edmunds.com. You can also visit The Recycler or a local newspaper to browse available used cars and many other used goods online.

The Caltech Credit Union may offer financing for car loans if you are a credit union member.

Automobile Insurance

Even though you may have purchased or leased a car, you cannot drive legally in the state of California without Liability (Third Party) Automobile Insurance. This insurance covers the cost of any injuries or damage you may cause if you are in an accident. If you take out a loan to purchase your car, you will also need to purchase Comprehensive Insurance. This insurance covers any damage to your car.

Conclusion of Postdoctoral Position

After completing a term at JPL, the postdoc may wish to stay on at the lab in a long-term position. Chances that this can be arranged depend strongly with funding conditions at the lab, field of specialty of the candidate, and other factors. Here we will discuss some of the central issues to be considered and a few procedural points to be remembered. Generally, securing employment and immigration status both take considerable time and effort, so arrangements should be started early.

There are a number of websites that describe in non-technical terms the mission and activities of the lab; a good starting point is the JPL internal website http://jplspace.jpl.nasa.gov (URL available internally)

Long-term employment has to fit into lab needs and lab funding. The best starting place for information about needs is with the postdoctoral advisor and with research staff in the postdoc's immediate section, where the "fit" with the postdoc's past experience will presumably be most obvious. Interesting openings in other areas should not be overlooked, as some would feel that ability is paramount and would be open to moderate retraining of capable scientists (similarly, some scientists feel that changing tasks periodically is an invigorating thing, though many scientific processes undoubtedly reward long experience in a narrow field of specialization).

The current lab funding climate, and speculation about it for the near future, is fairly easy to gauge for a postdoc physically located on the lab, particularly in late summer and early fall, as the fiscal year comes to a close and a new one begins. Nobody's crystal ball is completely clear, and the planning timescales of the Federal budget are short, but senior colleagues in the postdoc's section or division may be available for informal advice.

There is a website advertising open positions within JPL that an employee or postdoc can browse, but this is not the most common route to finding a position. Regular employees often get information about new positions from their line management ("supervisor"), and ideally a postdoc could find some information through their advisor, though this would not be something they could be expected to be expert with. Some extra effort is probably warranted, to directly contact line management (section, division) and ask about current staffing trends.

A non-traditional route for doing science at JPL is to work primarily for a project, flight or otherwise, and support scientific activities through auxiliary funding such as R&TD or DRDF . In this route, the uncertainty of the research funding may be offset by the relatively greater stability of project work, although even major projects at JPL are subject to funding vagaries. Another issue is keeping a balance between multiple projects, particularly if a flight project is on a critical path and in need of a high level of time commitment. Generally, though, projects at JPL are friendly toward research, and it is certainly no serious drain on their resources to supply basic support in the form of computing facilities and the like. Demand on employee time is the critical issue.

A key procedural issue for foreign nationals is to ensure that their presence in the U.S. is supported by a visa that is current and of the correct type. Foreign national postdocs leaving the program must contact their corresponding visa sponsor (i.e. ORAU for NPP and JPL International Office for JPL & Caltech.

Example Postdoc to JPL Employee success stories

Rosaly Lopes

Deputy Section Manager, Planetary Sciences

My experience as a postdoc at JPL opened up great career opportunities, some beyond what I could have imagined when I first arrived. After a Ph.D. at the University of London, UK, on aspects of volcanism on Earth and Mars, and three years working at the Old Royal Observatory Greenwich, I arrived at JPL in the summer of 1989 to pursue a lifelong dream of working for NASA. I spent the first year further developing the research I had done in the UK, but I knew that I had to broaden my expertise if I wanted a job at JPL at the end of the second year. At that time, there were no missions to Mars planned!

The best advice I can give to new postdocs is to make an effort to meet as many JPL people as possible. Of course, you have to work hard, but don't watch the grass grow around your desk! There are a lot of fantastic opportunities at JPL, but you have to seek them out. I got my first job here when I got to know scientists in the Near Infrared Mapping Spectrometer team on Galileo. I started helping them out while I was still a postdoc and the PI, Bob Carlson, offered me a job as a science coordinator (now known as Investigation Scientist) in 1991. I had never worked with infrared data before, but I am very grateful to the team for their confidence in me. They thought that my expertise in volcanology would be useful for doing the science planning for Io. I had never worked with Io data either, but I jumped in at the deep end and my career flourished.

The second piece of advice I would give to postdocs is not to confine you to a particular area of expertise in terms of data set, wavelength, or planet. Sometimes the opportunities are in a different area and it is good to take a risk, even if you feel for a while like a graduate student again, trying to learn a lot of new things. At the end of the Galileo mission, I joined the radar team on Cassini. I am now studying the geology of Titan and cryovolcanism. Another significant change, but new challenges are good. They broaden your science vision as well as your general expertise.

JPL is a truly great place to work and the people here are outstanding. It is a privilege to be surrounded by so many really smart, creative people. The Galileo project, in particular, taught me that our scientists and engineers will rise to great challenges and not give up. We had a lot of technical difficulties, but found ways around them and the result was a really successful mission. I once ended a lecture about Galileo by quoting the motto of Seabees during World War II – which I think is suitable for JPLers in general: "The difficult we do at once, the impossible takes a little longer."

Ichiro Fukumori

Group Supervisor, Ocean Circulation

After obtaining a PhD from MIT, Ichiro Fukumori was awarded a National Research Council Postdoctoral Fellowship and worked with Dr. Lee-Lueng Fu at JPL from 1990-1992. Anticipating the launch of TOPEX/Poseidon, Ichiro pioneered the development of ocean data assimilation for ingesting satellite observations into ocean circulation models for optimal estimation of the state of the ocean and its effects on climate. His completion

of postdoc work coincided with the beginning of the TOPEX/Poseidon Mission. Ichiro decided to stay at JPL to take advantage of the revolutionary scientific findings from the new mission. He applied the newly developed powerful technique to the TOPEX/Poseidon observations of ocean surface topography. This endeavor played a key role in the formation of a multi-institutional project called ECCO (Estimation of the Circulation and Climate of the Ocean) in the late 1990s. ECCO involves collaboration among JPL, MIT, Scripps Institution of Oceanography and others and represents a major advance in oceanography resulting from TOPEX/Poseidon. ECCO has essentially put JPL on the map of ocean modeling and data assimilation. For these accomplishments, Ichiro was awarded the prestigious NASA Exceptional Scientific Achievement Medal in 2005. In the same year he was appointed Group Supervisor for the Ocean Circulation Group of the Earth Science Section of the Science Division. Ichiro is currently a Principal Scientist. He is considered among the world's leading experts in ocean data assimilation.

Will West

Senior Member of Technical Staff, Electrochemical Technologies Group

I completed my Ph.D. in Materials Science Engineering in 1998, with research focused on the electrochemistry of thin film solid electrolytes. In 1999, I took the position of Caltech Postdoctoral Scholar at JPL, working on the System on a Chip project with the goal to develop thin film solid state batteries, managed through the Center for Integrated Space Microsystems. Later that year, NASA released a call for proposals for Advanced Cross Enterprise Technology Development. Our group formed a proposing team, wrote a proposal, and was awarded a three-year technology development project. I was chosen to serve as Task Manager for the project, which was a key contributing factor in the decision to transition me from a postdoctoral position to a JPL staff member.

To make a successful conversion from a postdoctoral to staff position at JPL as a technologist, I recommend that several personal attributes and work strategies be nurtured:

1. Seek out opportunities to respond to proposals: Within the constraints of JPL Rules! and the postdoc's primary commitments, the postdoc should be aggressive in responding to calls for proposals originating from JPL, NASA, and other agencies.
2. Become a subject matter expert: Success in winning research and development funding depends a great deal on the perceived expertise of the team. The postdoc should be well versed in the topic literature and preferably well published in the field.
3. Avoid too narrow of a research focus: The lifecycle of a technology project is typically relatively short, perhaps no more than three years, given that very few projects survive from conception to incorporation into missions. As such, the postdoc should stay current with literature and technology developments in allied fields and related on-lab projects to effectively transition from a de-funded project to other opportunities.

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