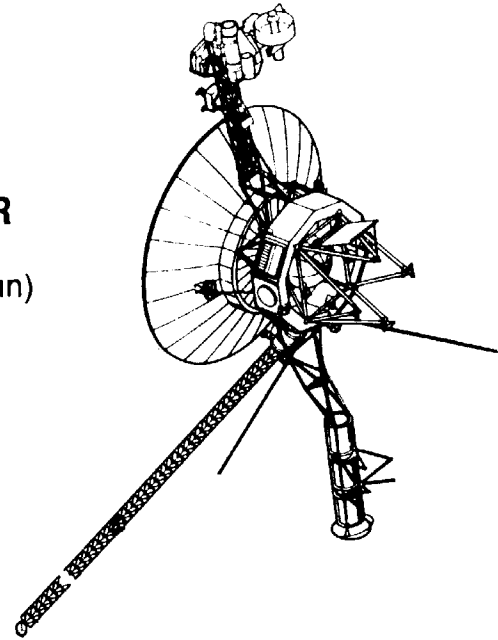


The JPL Running Club's
1st Annual
VOYAGER GRAND TOUR
(formerly called the New Year's Run)



Date: Friday, February 22, 1991
Time: 11:45 am
Place: Arroyo Seco Canyon course
Distance: Marathon Relay or 2.5 miles

The Running Club's traditional New Year's Run is launching its second decade under a new name: the Voyager Grand Tour. The race's new name is a memorial to the Voyager spacecraft, which visited four different planets on its Grand Tour of the solar system. In the Running Club's version of the Grand Tour, six-runner Marathon Relay teams visit six planets each (see reverse), including the four encountered by Voyager.

Each team's six runners combine to run six distances adding up to a marathon. The six distances are equally spaced in increments of 1/4-mile (5.00, 4.75, 4.50, 4.25, 4.00, and 3.75 miles). The fastest runner runs the longest relay segment, the slowest runner runs the shortest, and the four intermediate runners run intermediate distances. Everyone runs simultaneously rather than serially, so a typical team can finish its Grand Tour in about 35 minutes. All six runners on a team cross the finish line together, and the team gets just one finish time.¹

Each team is subject to a **Team Speed Limit of 48 miles per hour**. A team's total speed is calculated simply by adding together the *speeds*² of its six runners. The speed limit will be strictly enforced by the Race Director at the time of registration. **A team will not be allowed to register if, in the opinion of the Race Director,³ its total team speed exceeds the Team Speed Limit of 48 mph.** The speed limit will also be enforced during the race — possibly allowing for some judicious enforcement leeway as voted by the team captains. **A team will be disqualified if its times are too low at either of two points in the race where its speed can be deduced** (see reverse). The two disqualification time thresholds (DQT_1 and DQT_2) will be determined as follows: DQT_1 equals the median of disqualification times not exceeding 112:30 voted by the team captains (and Race Director if necessary); and DQT_2 equals 29% of DQT_1 . The maximum allowable disqualification times (112:30 and 32:38, respectively) are calculated to avoid the possibility of disqualifying any team in strict compliance with the 48 mph speed limit.

There are only two minor rule changes from last year's race. The MOON (see reverse) is now just 44 yards from EARTH (formerly 73 yards). Last year two speed limits ("nominal" and "absolute") were announced in the race flyer. The nominal speed limit was enforced at the time of registration, and the slightly higher absolute speed limit was enforced during the race. This year there is only one announced speed limit, and it is up to the team captains to decide how much enforcement leeway (if any) to grant during the race.

¹ For runners not able to find a team, there is also a concurrent 2.5-mile individual run for which ribbons are earned but medals are not awarded.

² Note that speed equals the reciprocal of pace per mile.

³ Note *Caution* remark on reverse side.

Rules for Forming Marathon Relay Teams

1. All teams must be pre-registered and must provide at least one non-running volunteer to help officiate the race. Register by calling the Race Director (Sam Dolinar, 4-7403).
2. A team's registration will not be approved if, in the opinion of the Race Director, the sum of its six runners' velocities exceeds the Team Speed Limit of 48 mph. *Caution:* The Race Director's opinion of a runner's speed is almost invariably faster than the runner's own estimate!!
3. If you plan to register a full team of 6 runners, first call the Race Director with a partial team (5 or less) to get a preliminary ruling on runners' speeds. Then you'll know what speed(s) you'll need to fill out the remainder of the team.
4. Partial teams and individual runners should call the Race Director as early as possible. A matchmaking service will be provided for runners without teams or teams missing a few runners.

Rules for Running the Marathon Relay Race

1. Each team of 6 runners will be issued 6 batons that are coded by color and by planetary destination (black/PLUTO, blue/NEPTUNE, green/URANUS, yellow/SATURN, orange/JUPITER, and red/MARS).
2. Batons may be exchanged (one-for-one) between teammates at any time during the race. The only stipulation is that every runner must carry exactly one baton at all times.
3. Each team may assign its six runners arbitrary relative headstarts or delayed starts in units of whole minutes (plus or minus), in order to match its team's speeds to the course distances. The sum of these six relative headstarts (+) and delayed starts (-) must equal 0:00 for all teams. The six runners on a team leave the starting line at times given by this distribution of individual headstarts and delayed starts.
4. All 6 runners and all 6 batons must first cover an initial 2.5-mile segment. This segment starts from EARTH (our usual Start/Finish Line, .M. on the Green Dot Course), then proceeds up Arroyo Seco Canyon 1.25 miles to PLUTO (a point between Teddy's Outpost and the Elmer Smith Bridge), then back down the canyon 1.25 miles to EARTH again.
5. A team will be disqualified if the sum of its 6 runners' split times at the 2.5-mile mark is less than DQT_1 , which is guaranteed not to exceed 112:30. The exact value of DQT_1 will be determined by vote of the team captains before the race begins.
6. After the initial 2.5-mile segment, all 6 batons must be carried one more time up the canyon to their respective color-coded planetary destinations (see map). At the planetary destinations, validation stickers are affixed to the batons. One baton must get its validation sticker at PLUTO, another baton gets its sticker at NEPTUNE, another at URANUS, another at SATURN, another at JUPITER, and the last baton gets its validation sticker at MARS.
7. All 6 batons must be returned to the finish line at EARTH, bearing validation stickers received at the proper planetary destinations.
8. All 6 runners with their 6 validated batons must rendezvous before passing the MOON (see map) on the final approach to EARTH. Then all six runners must run the entire distance (44 yds) from MOON to EARTH linked together. A team will not receive a finish time unless its 6 runners return to EARTH as one unit joined by their batons.
9. A team will be disqualified if it leaves the MOON before time DQT_2 equal to 29% of DQT_1 .

