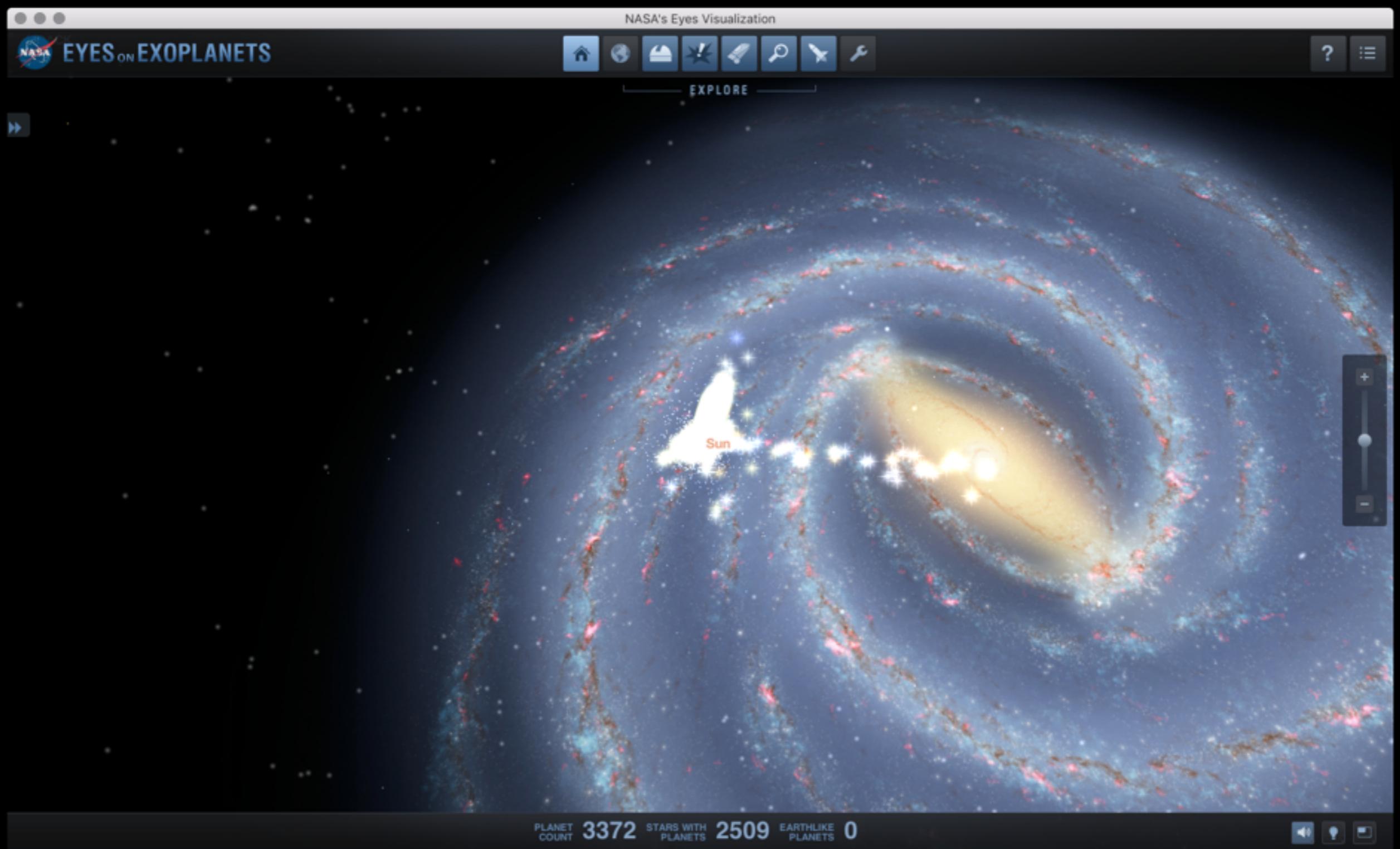
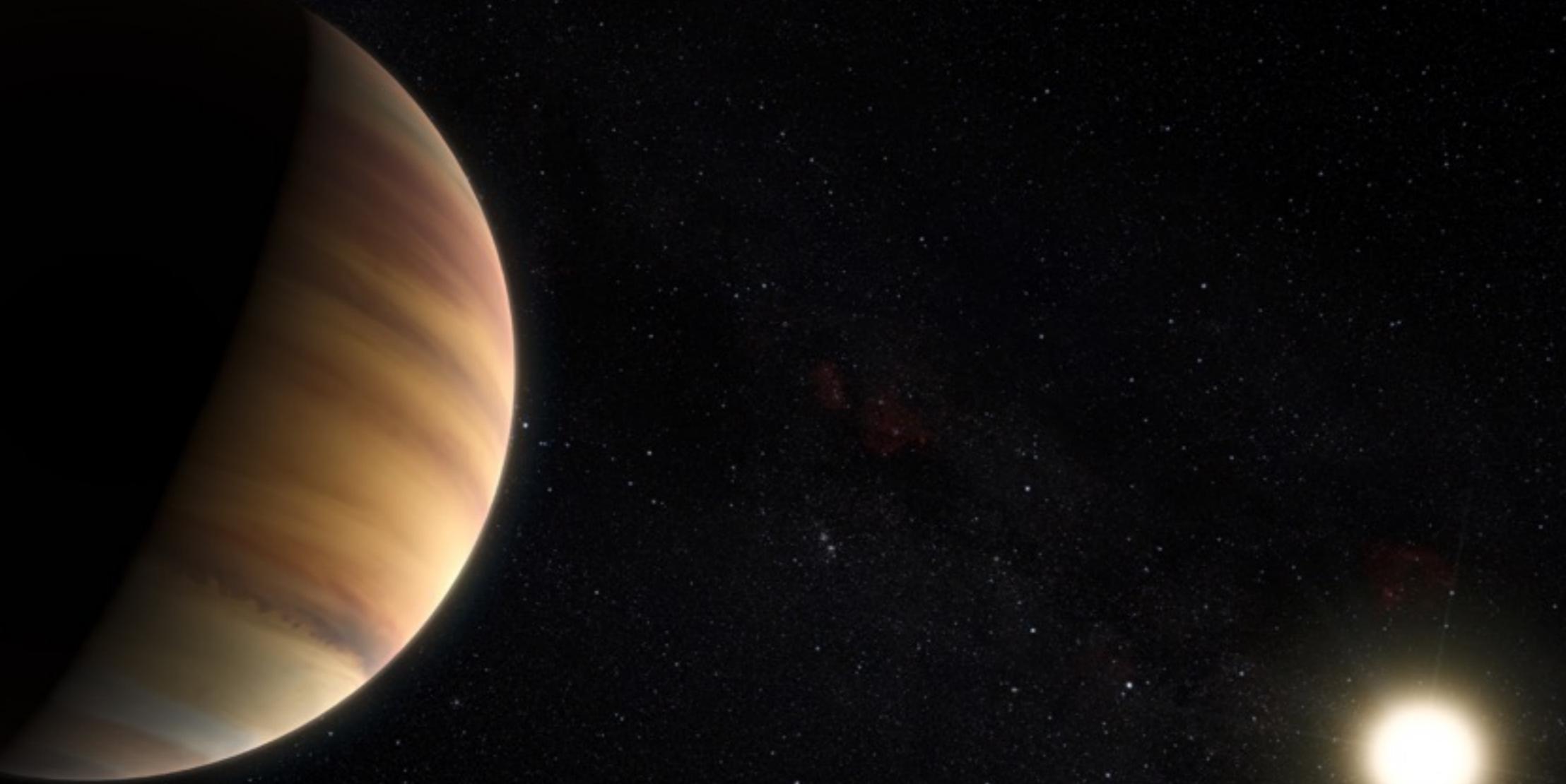
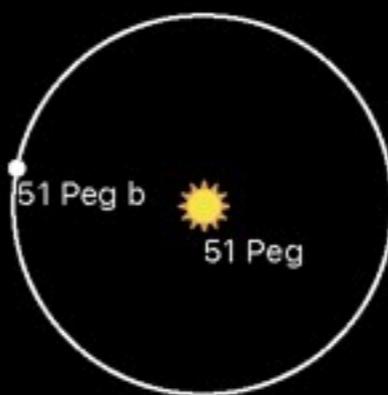


EXOPLANET SAFARI



51 Peg b

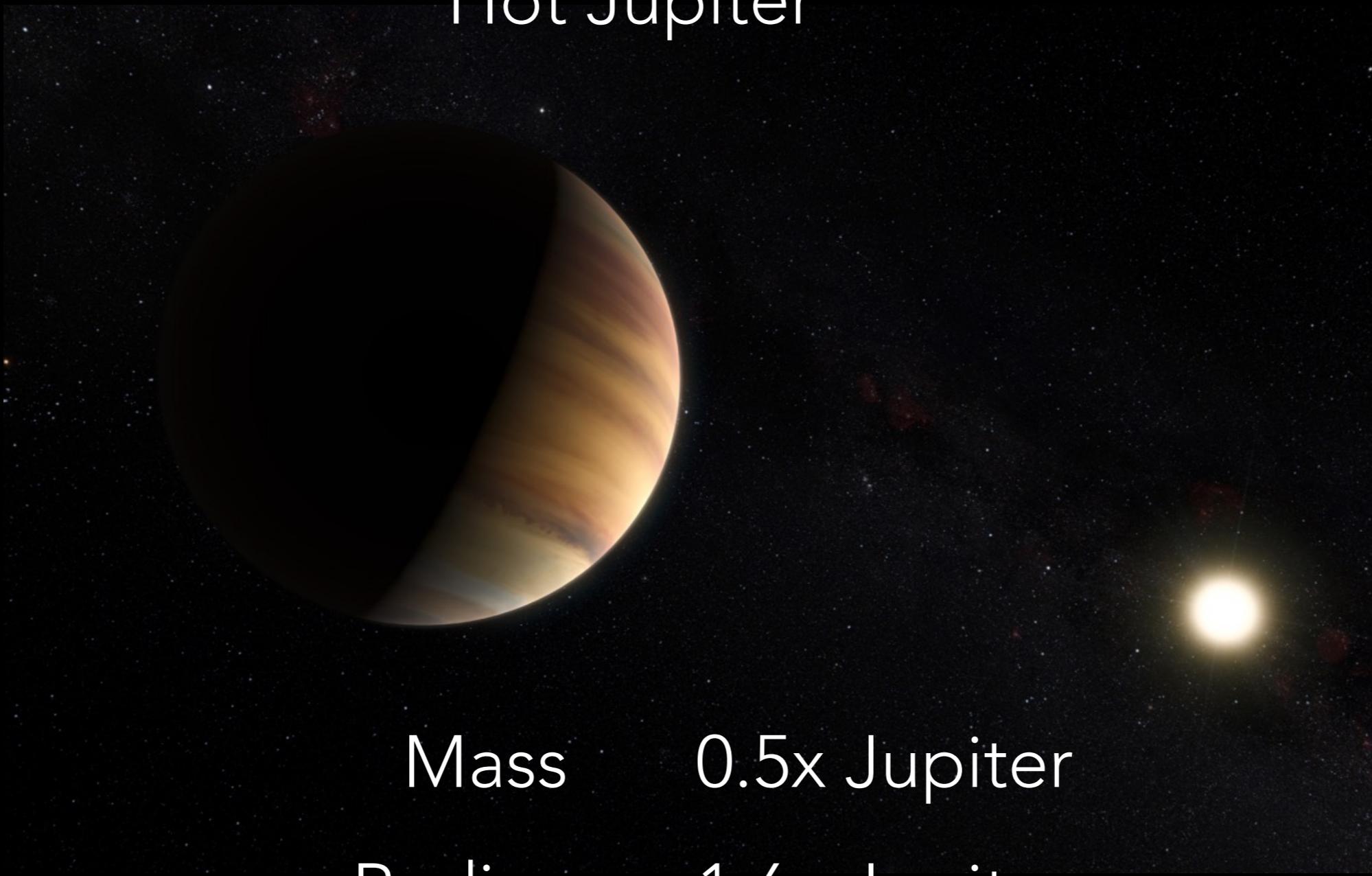




51 Peg b

51 Peg

Hot Jupiter



Mass 0.5x Jupiter

Radius 1.6x Jupiter

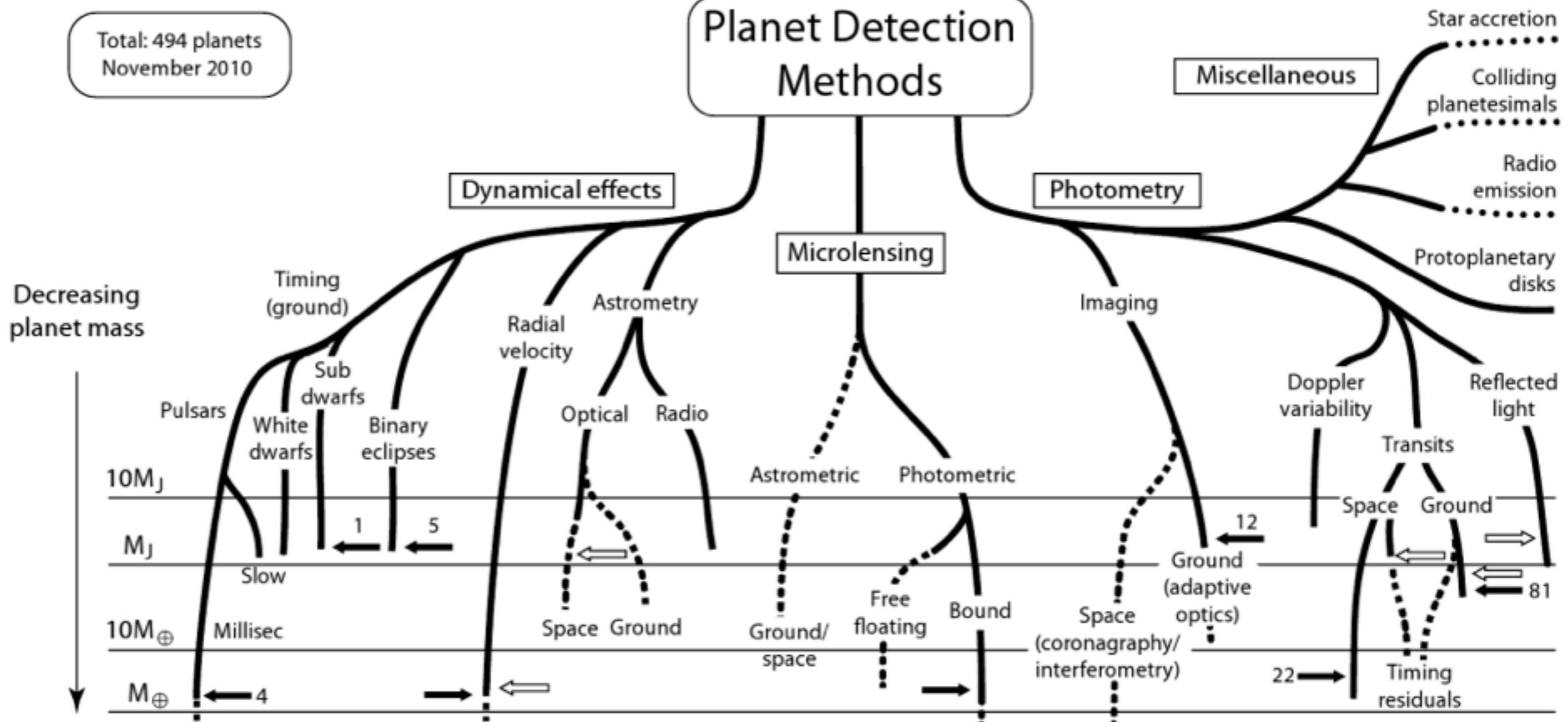
Orbit 4.23 days

Temp 990°C

Total: 494 planets
November 2010

Planet Detection Methods

Decreasing planet mass



Discovered: 10 planets

358 planets

11 planets

12 planets

103 planets

Detected: 10 planets
(6 systems,
3 multiple)

461 planets
(390 systems,
45 multiple)

11 planets
(10 systems,
1 multiple)

12 planets
(10 systems,
1 multiple)

108 planets
(7 systems,
1 multiple transit)

— existing capability

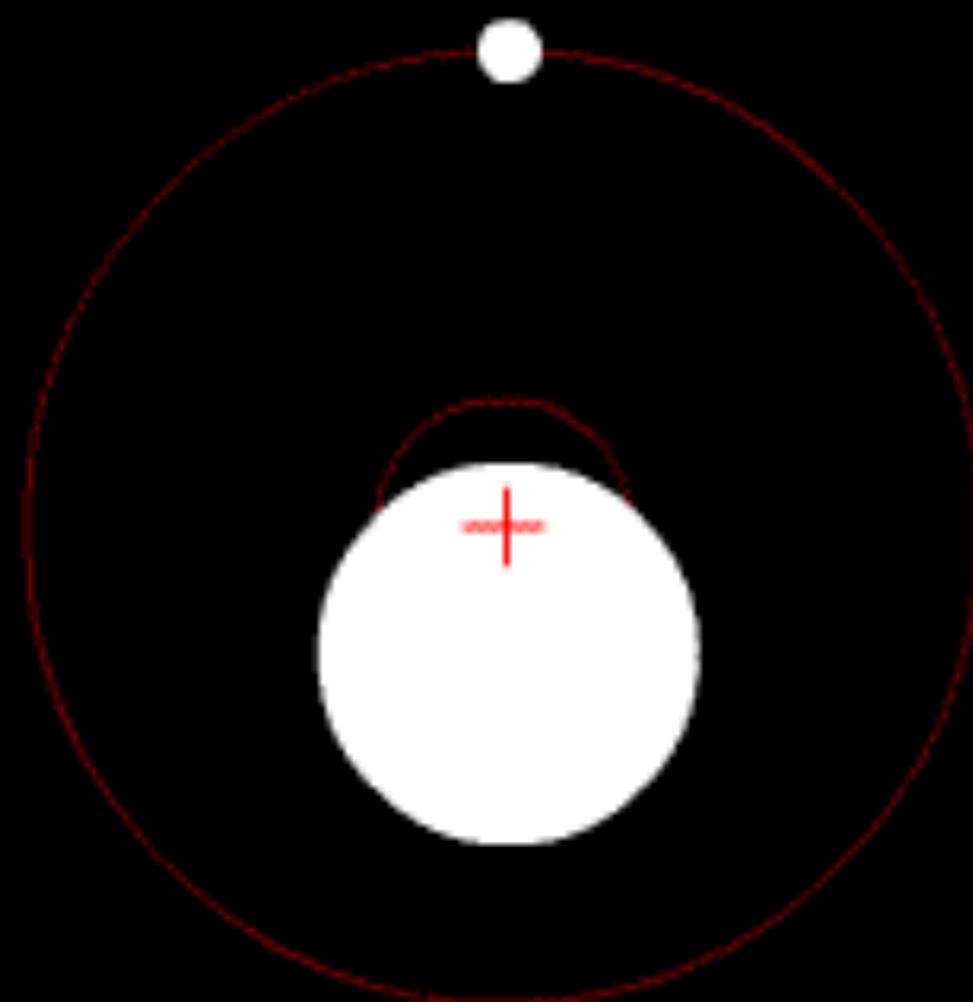
····· projected (10–20 yr)

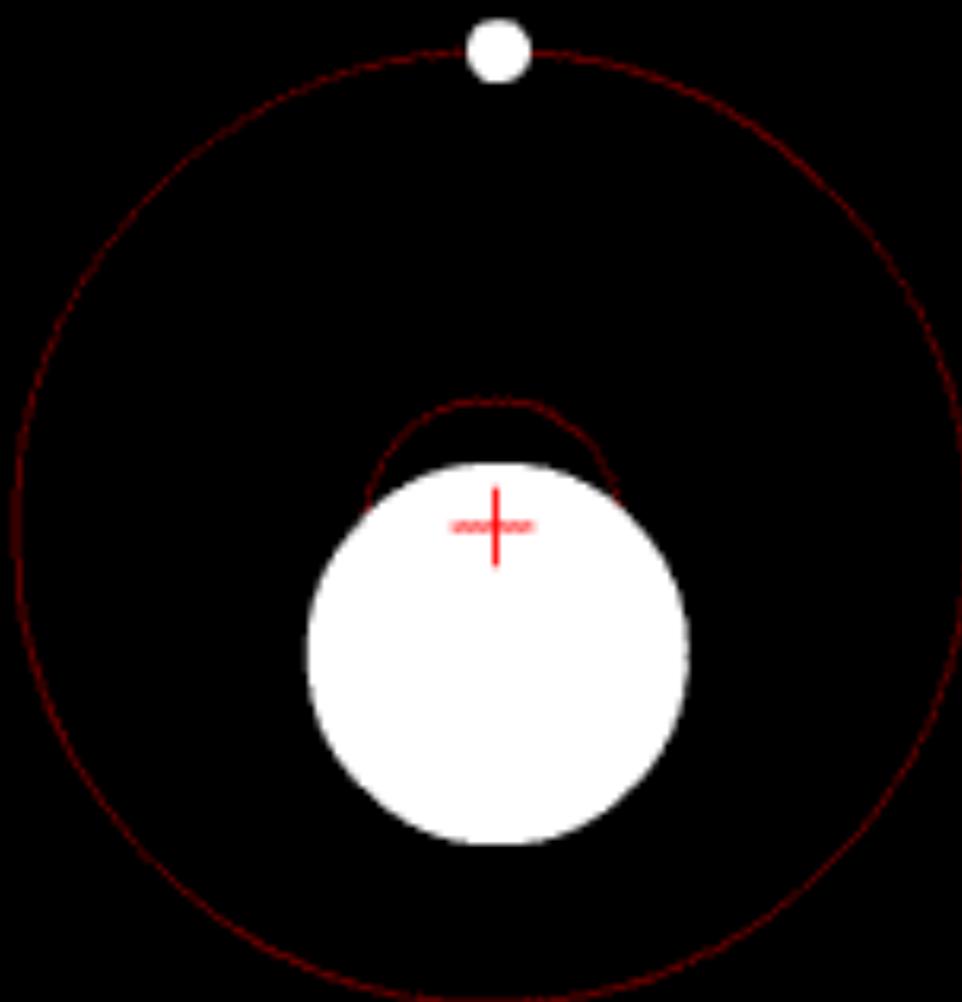
n = planets known

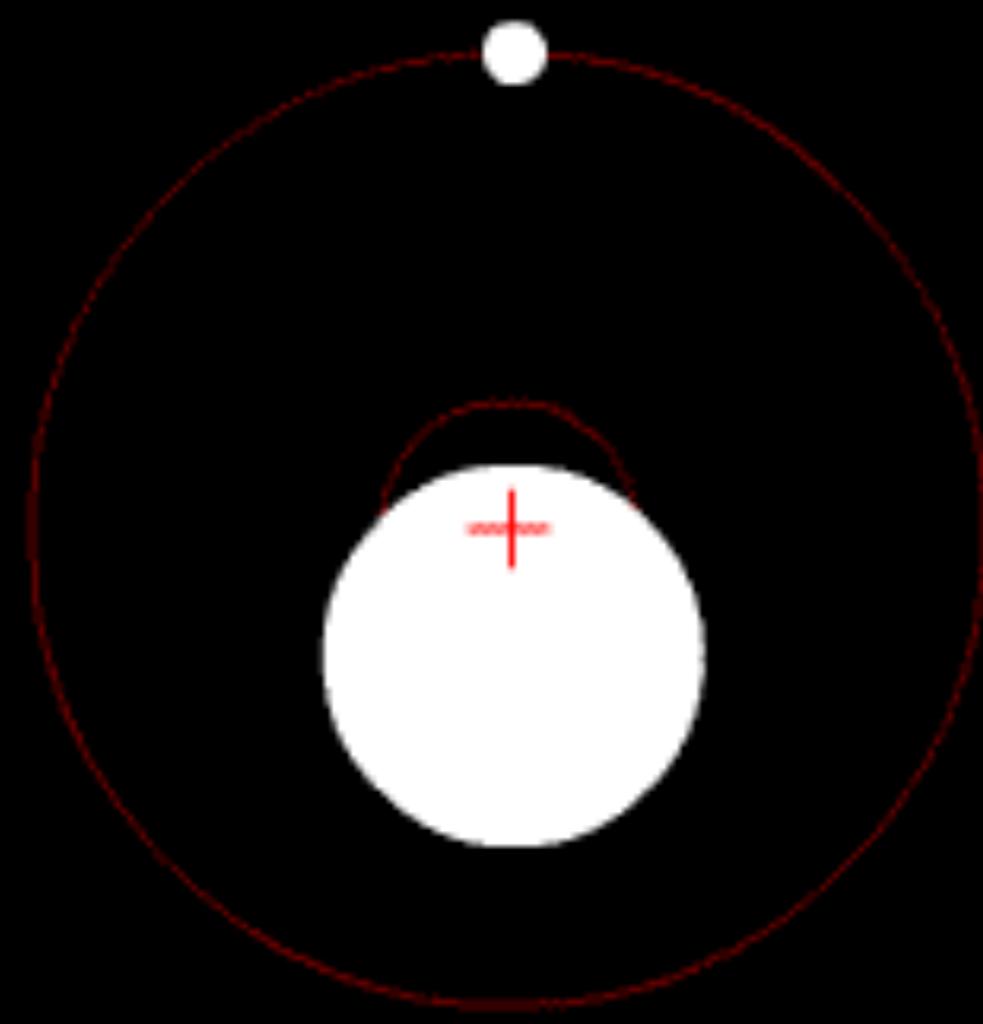
→ discoveries

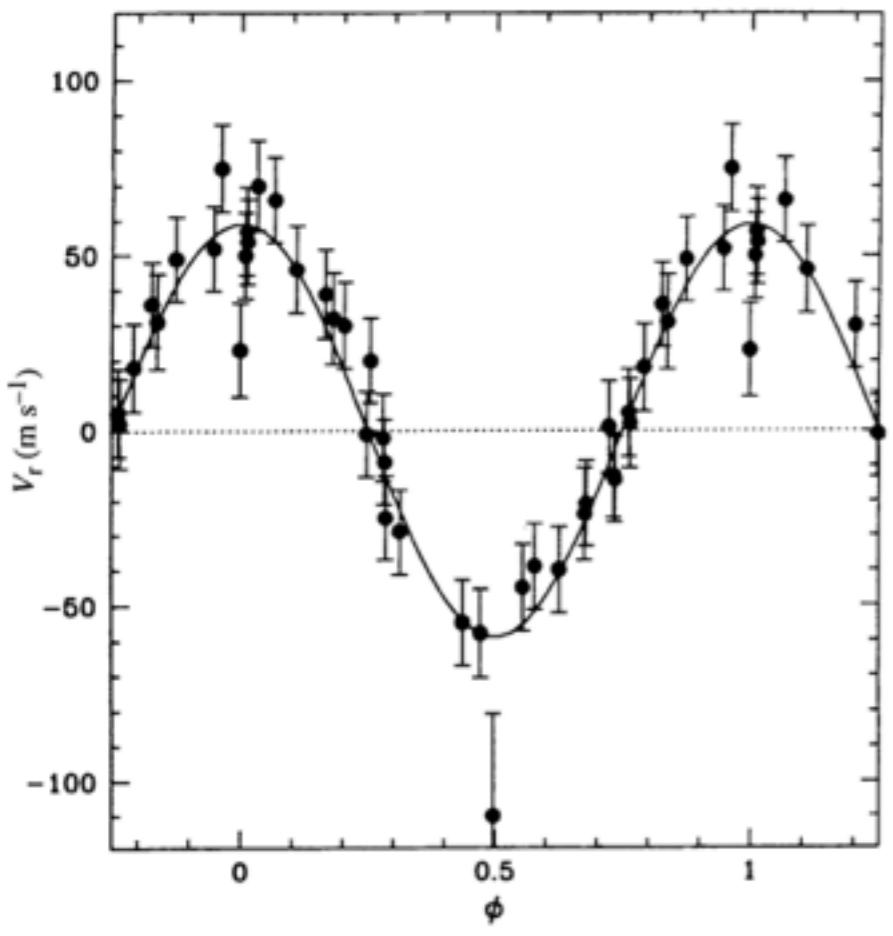
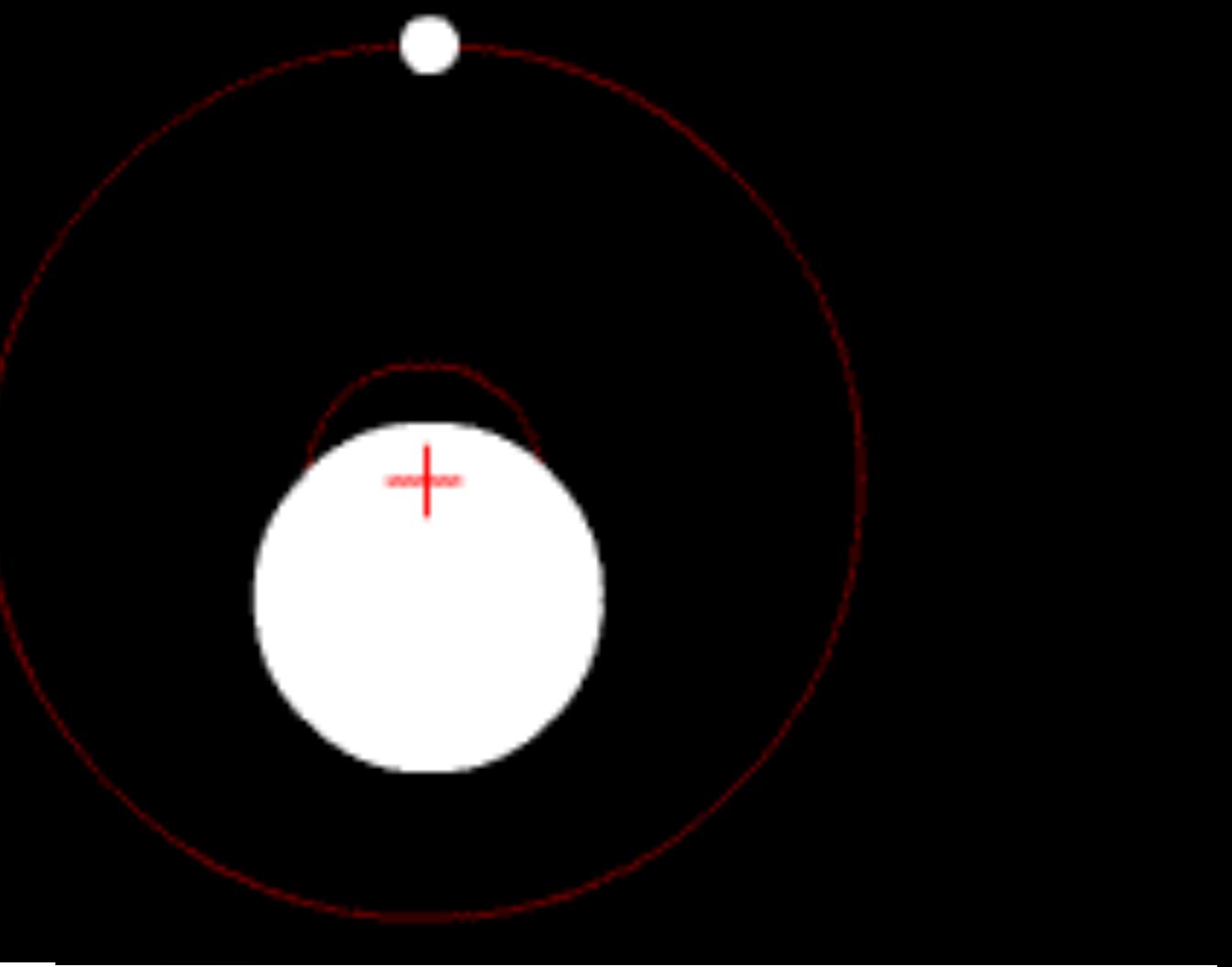
→ follow-up detections

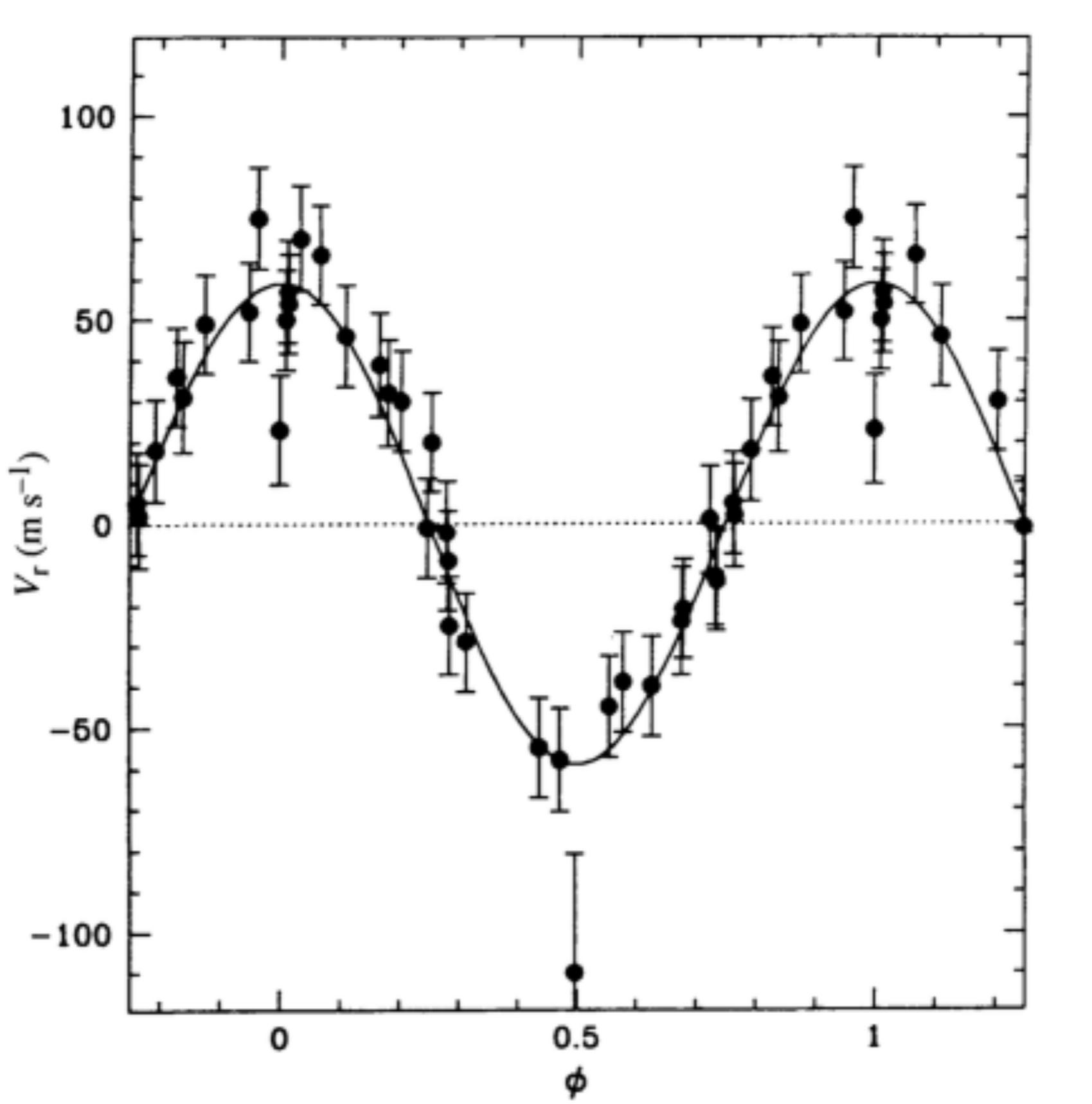


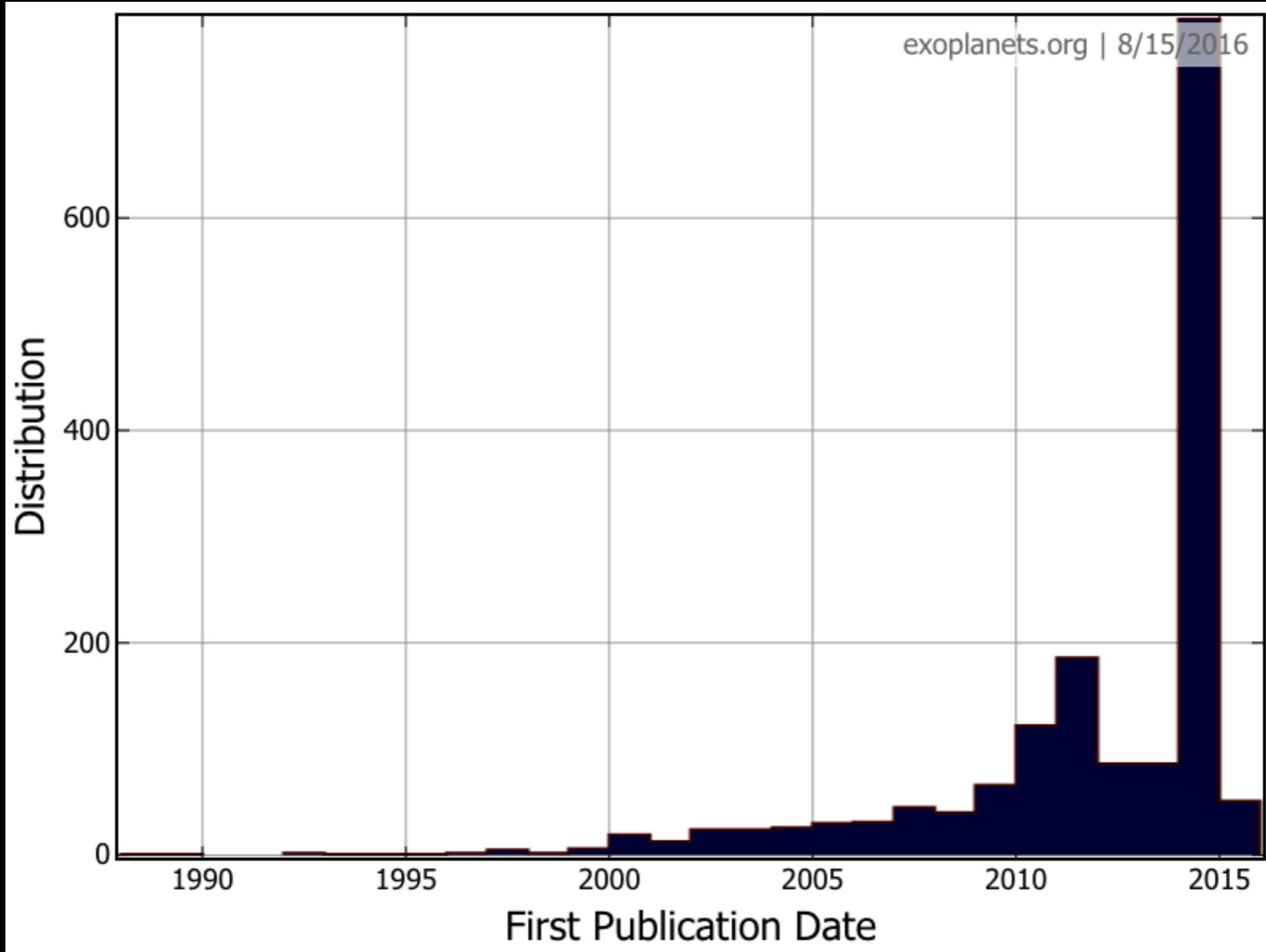




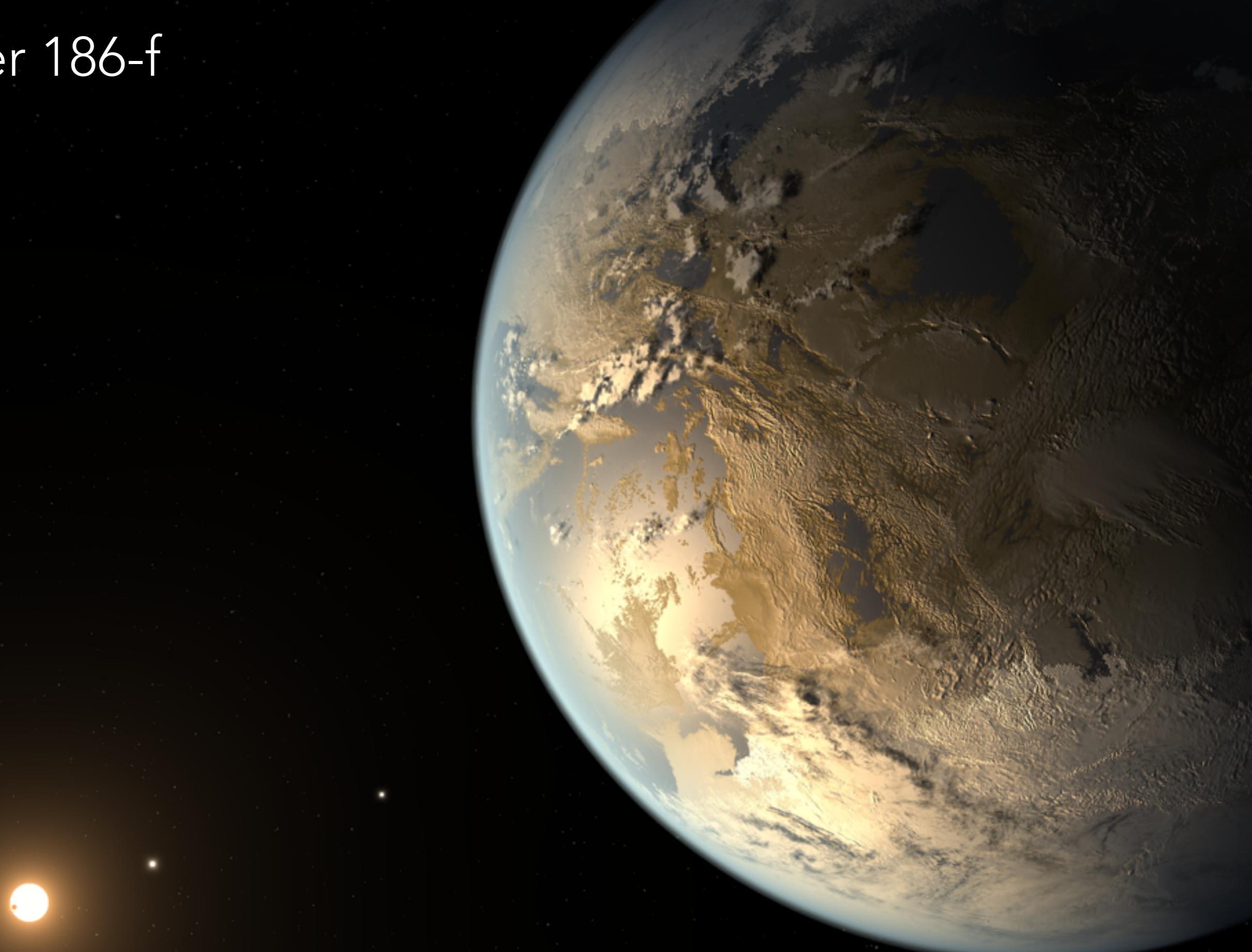


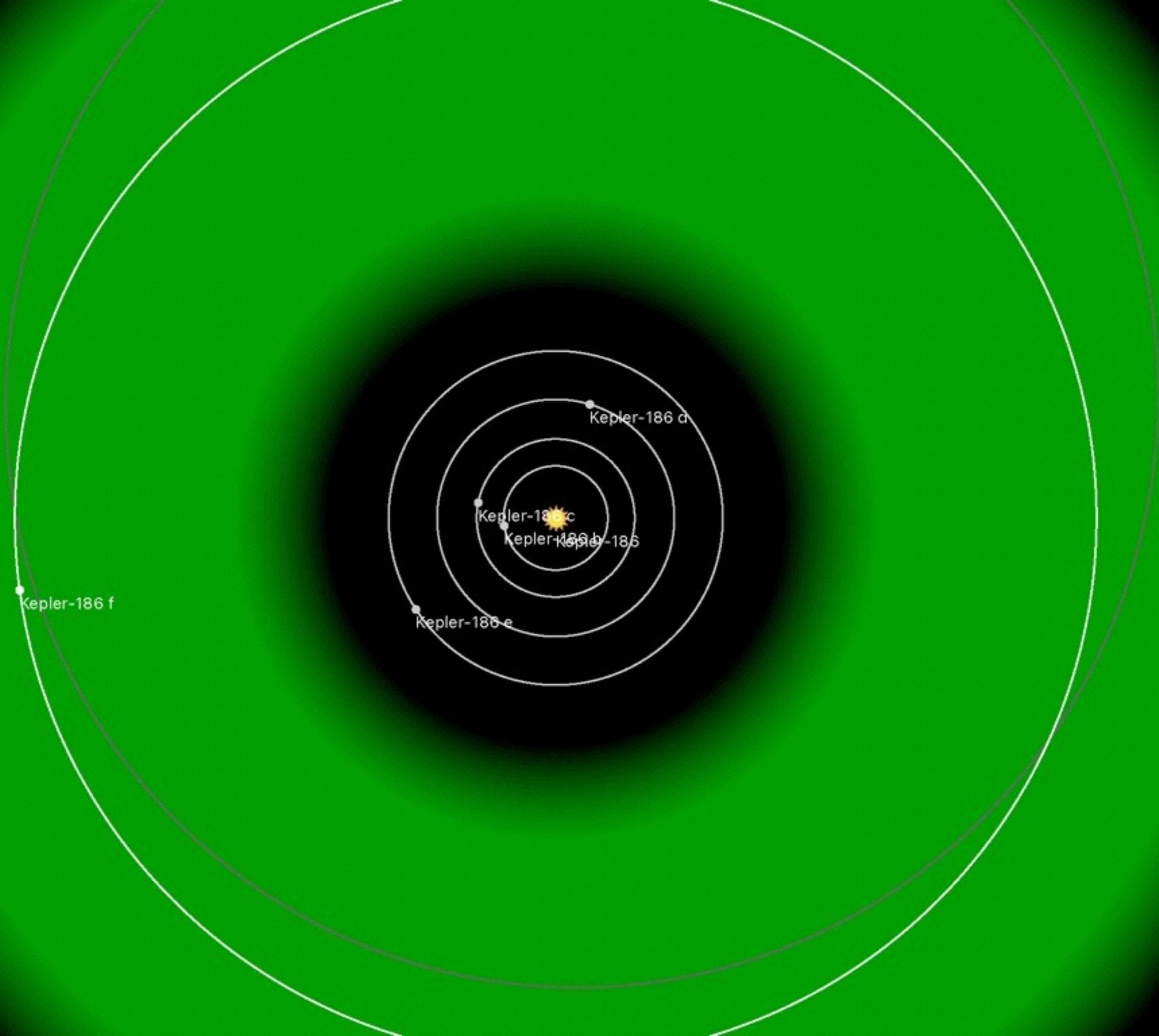


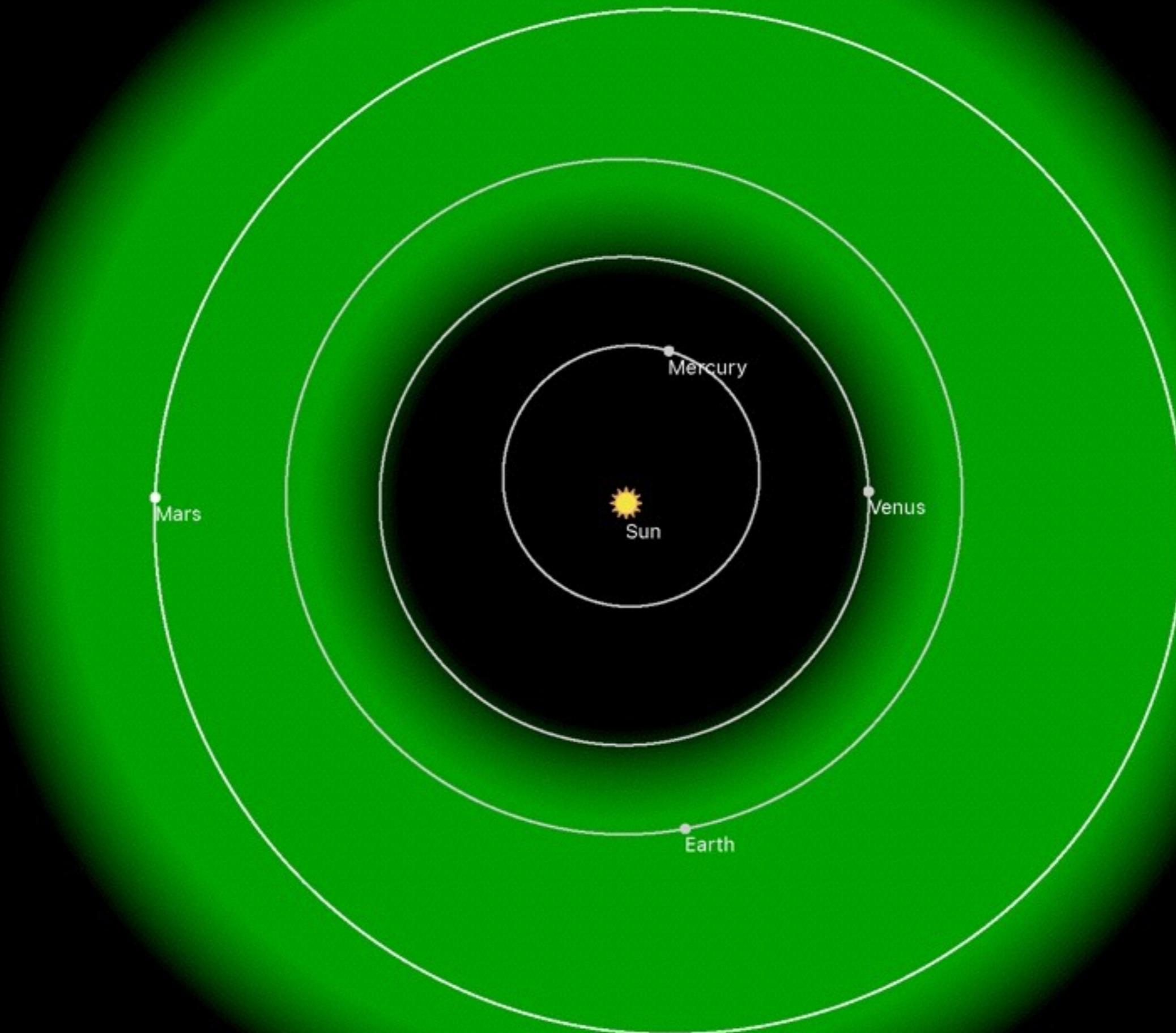


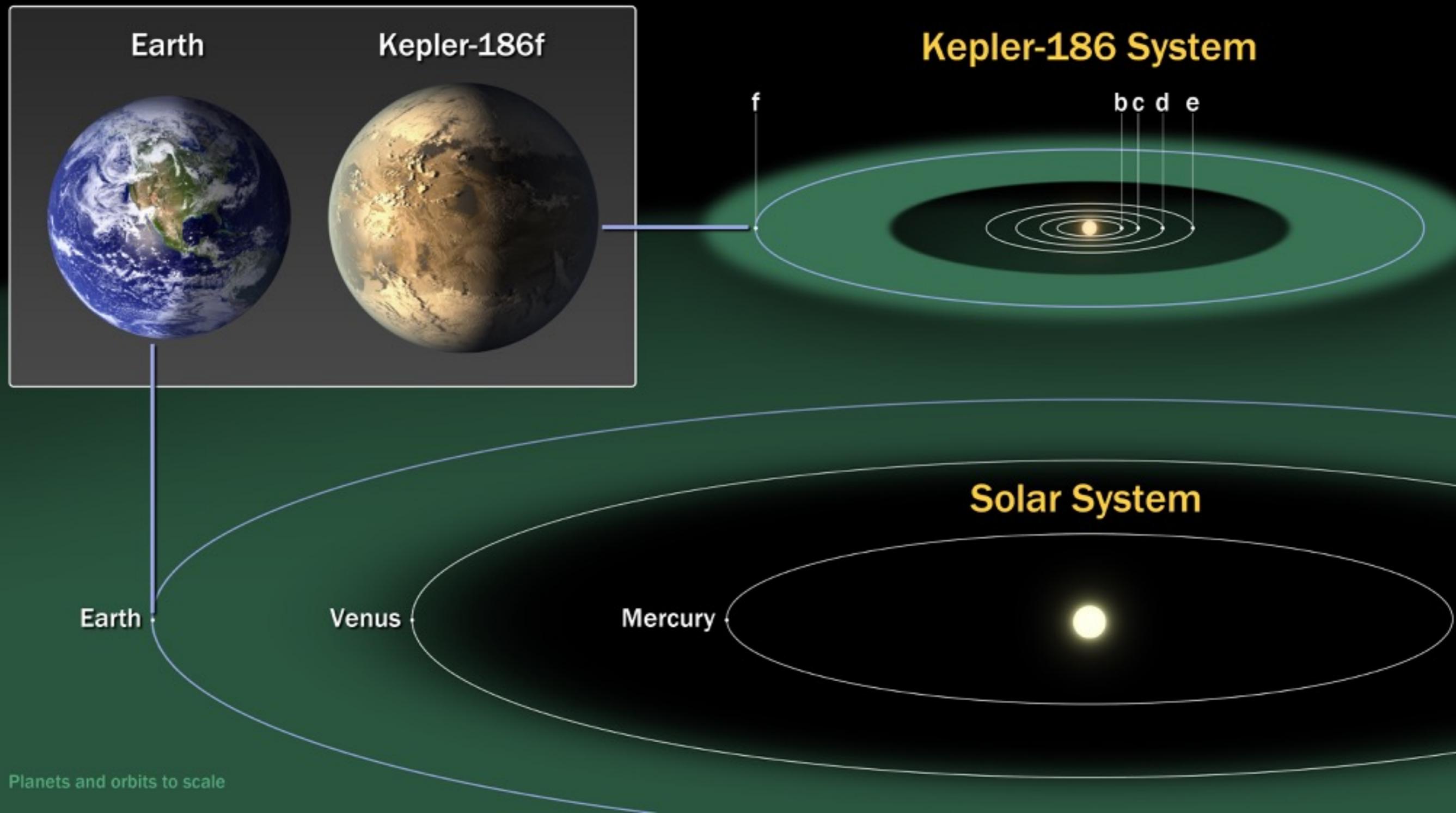


Kepler 186-f



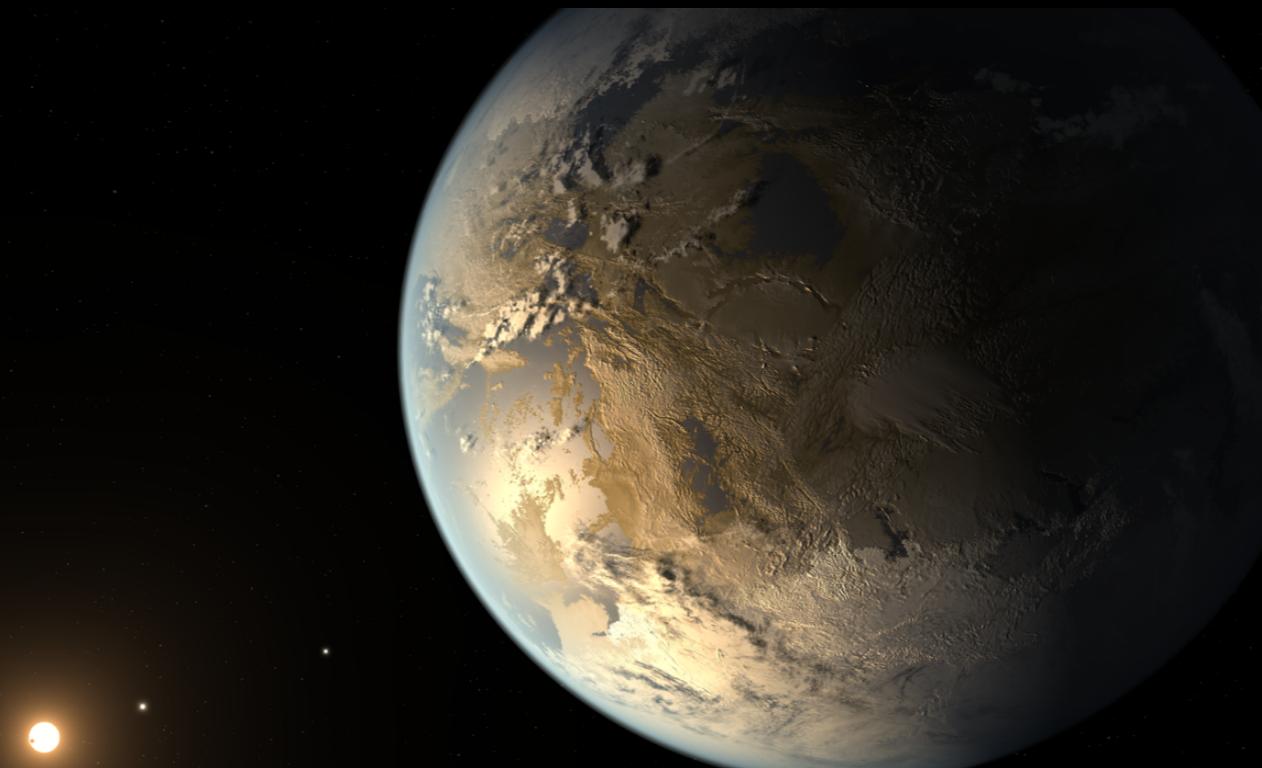








Earth 2.0



Mass

Unknown

Radius

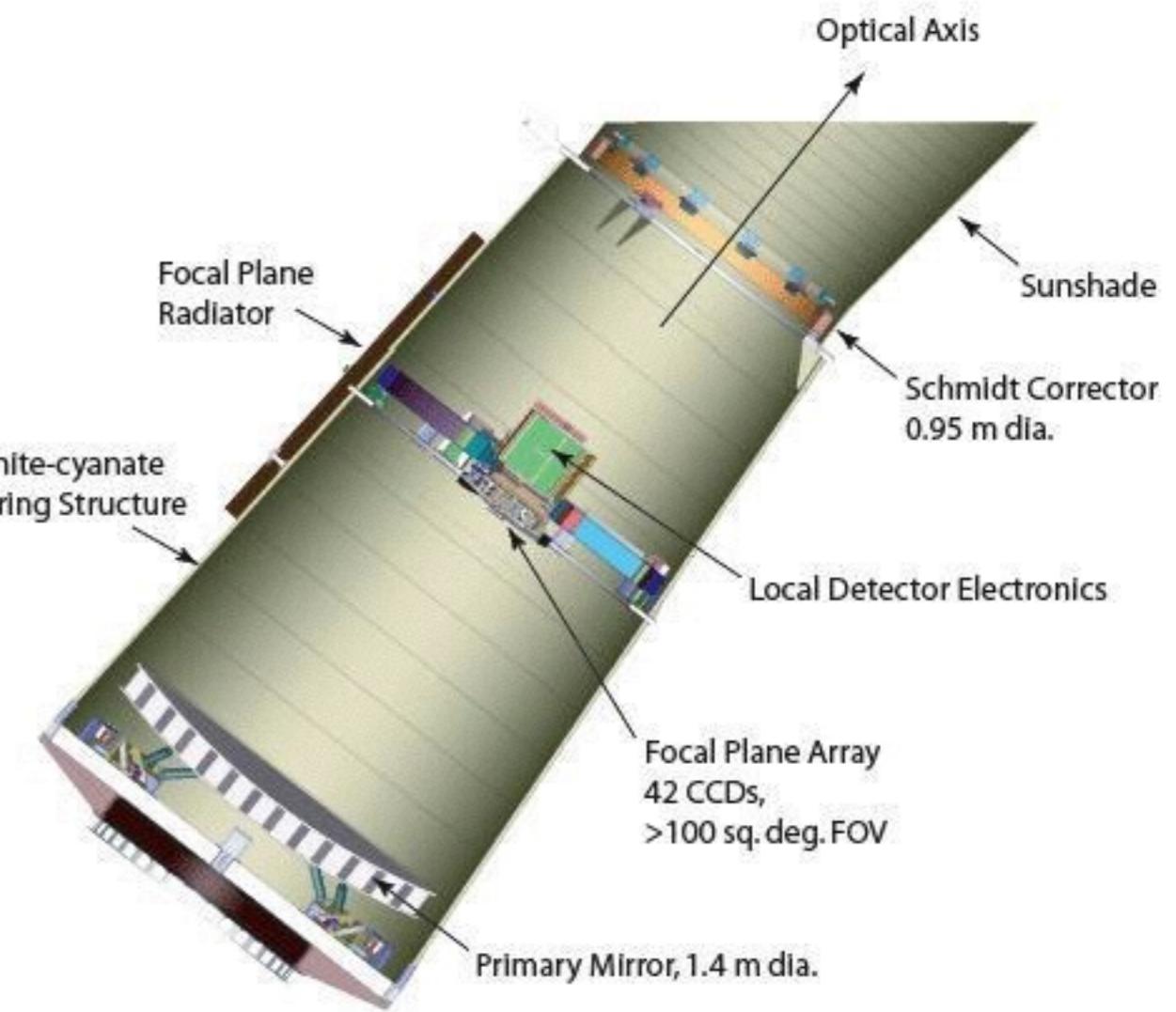
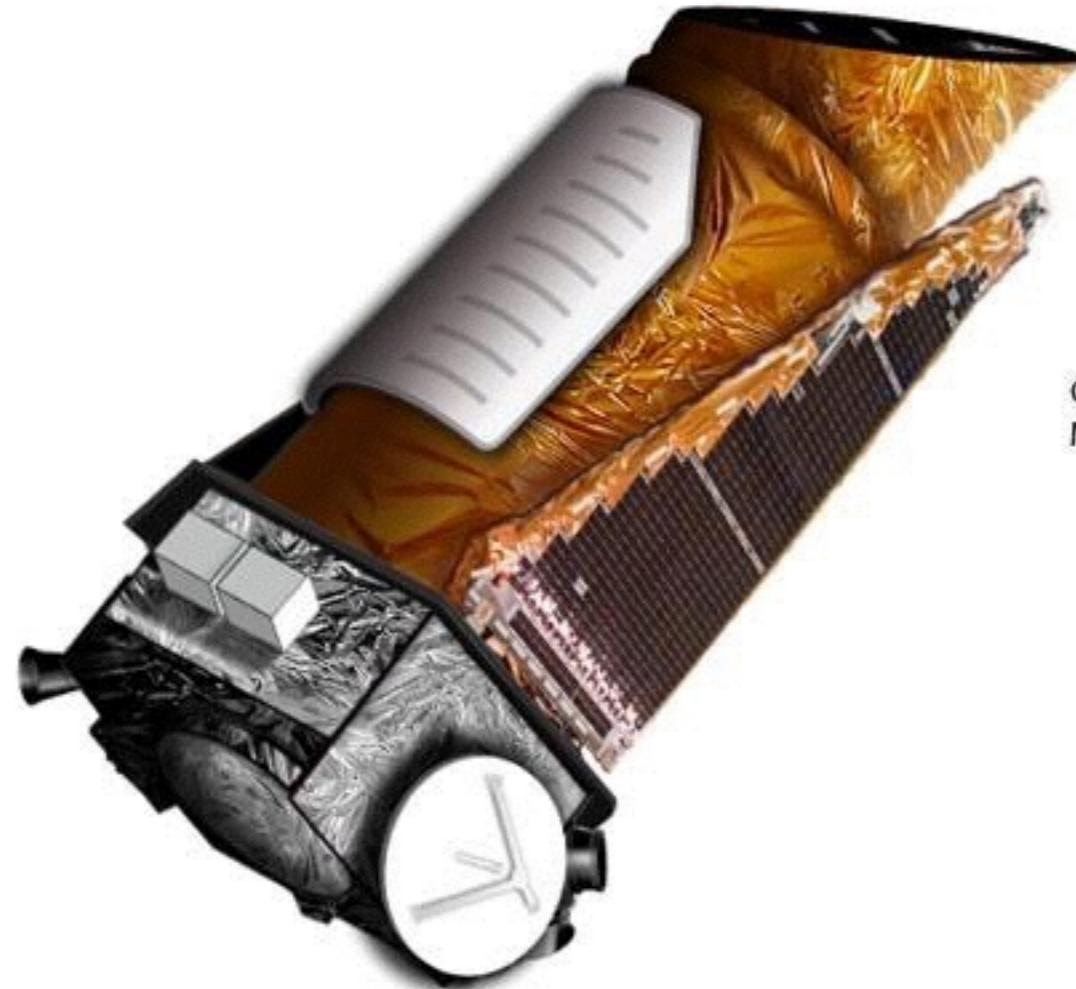
1.08x Earth

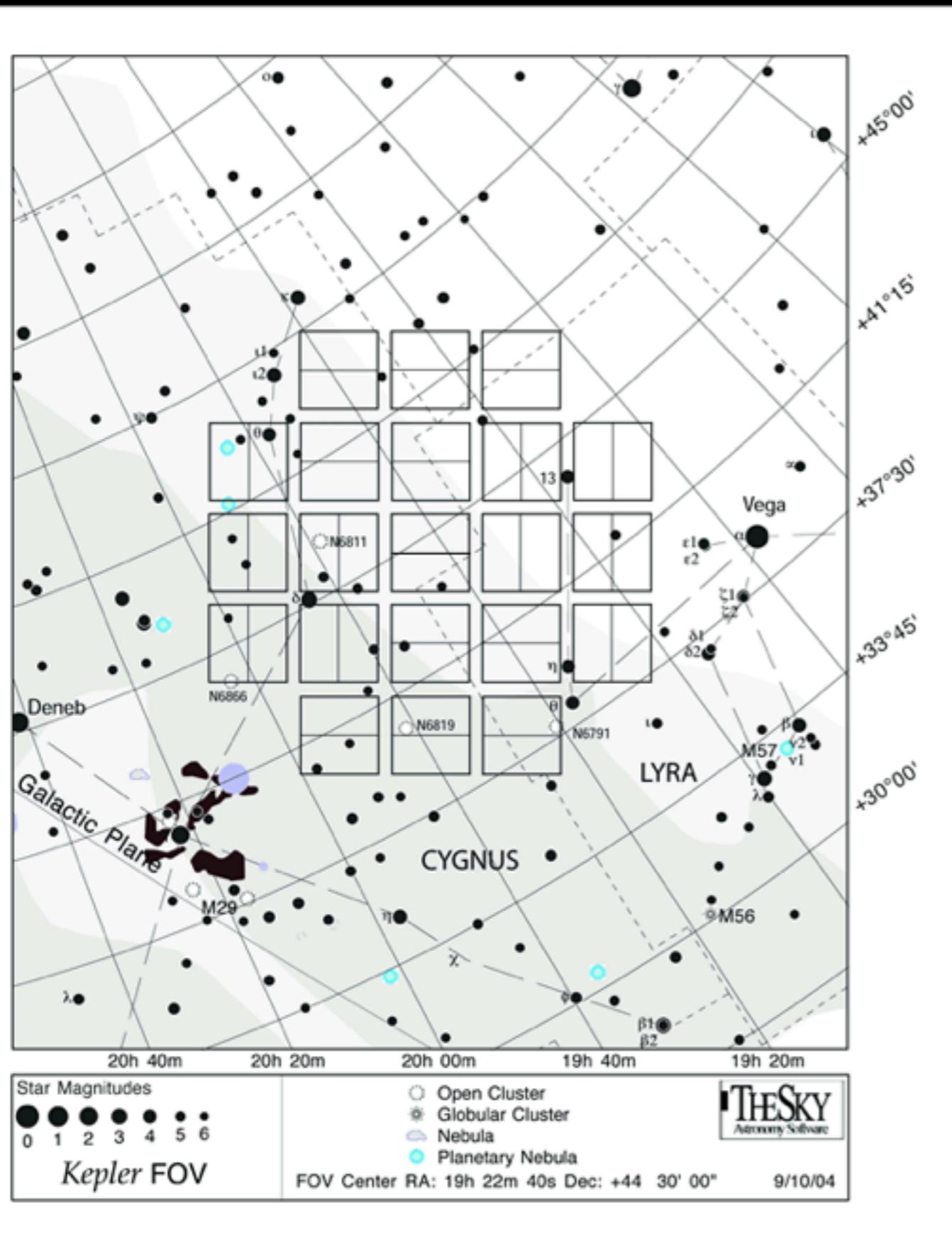
Orbit

112 ± 24 days

Temp

Mars-Earth

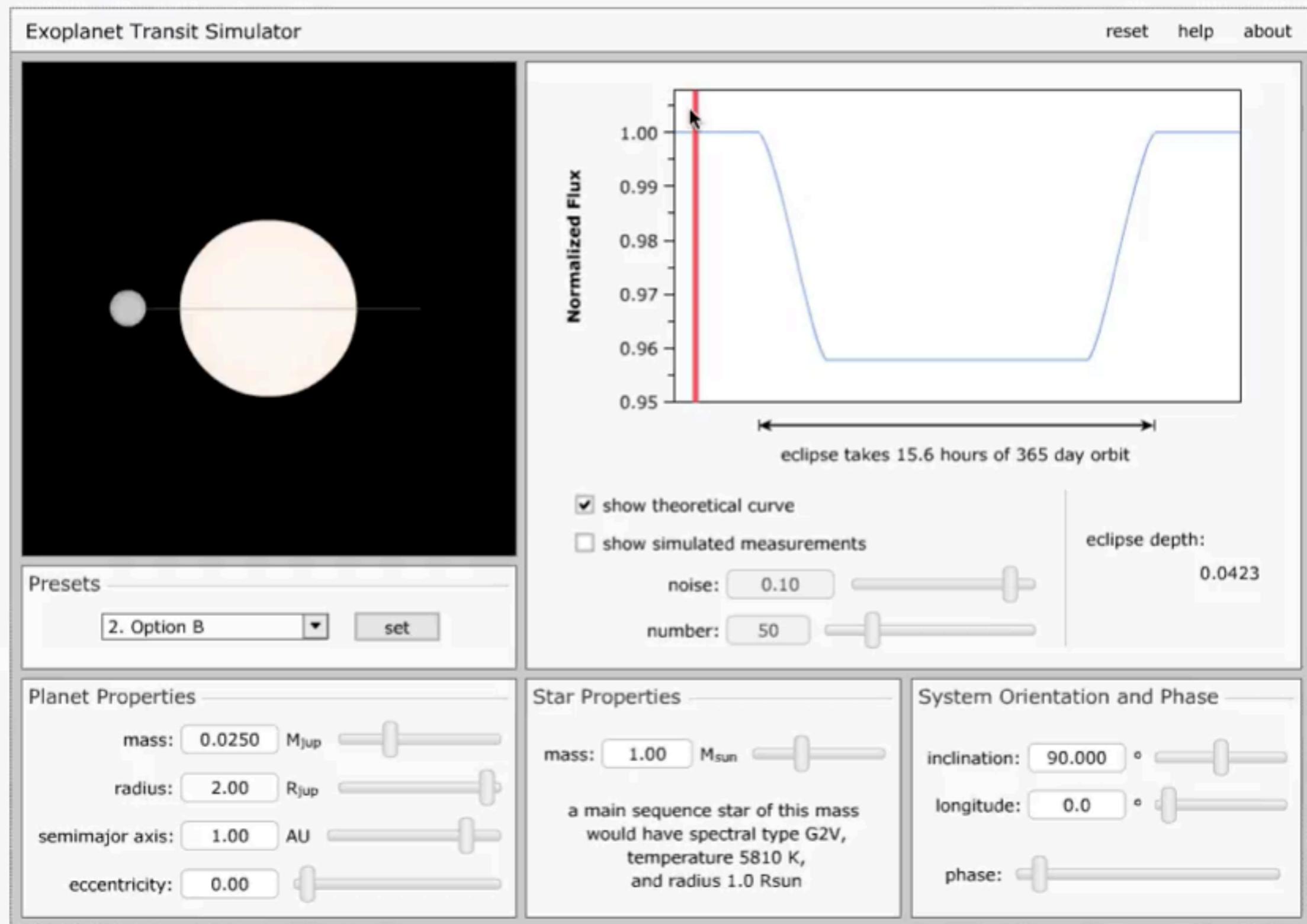




Astronomy Education at the University of Nebraska-Lincoln

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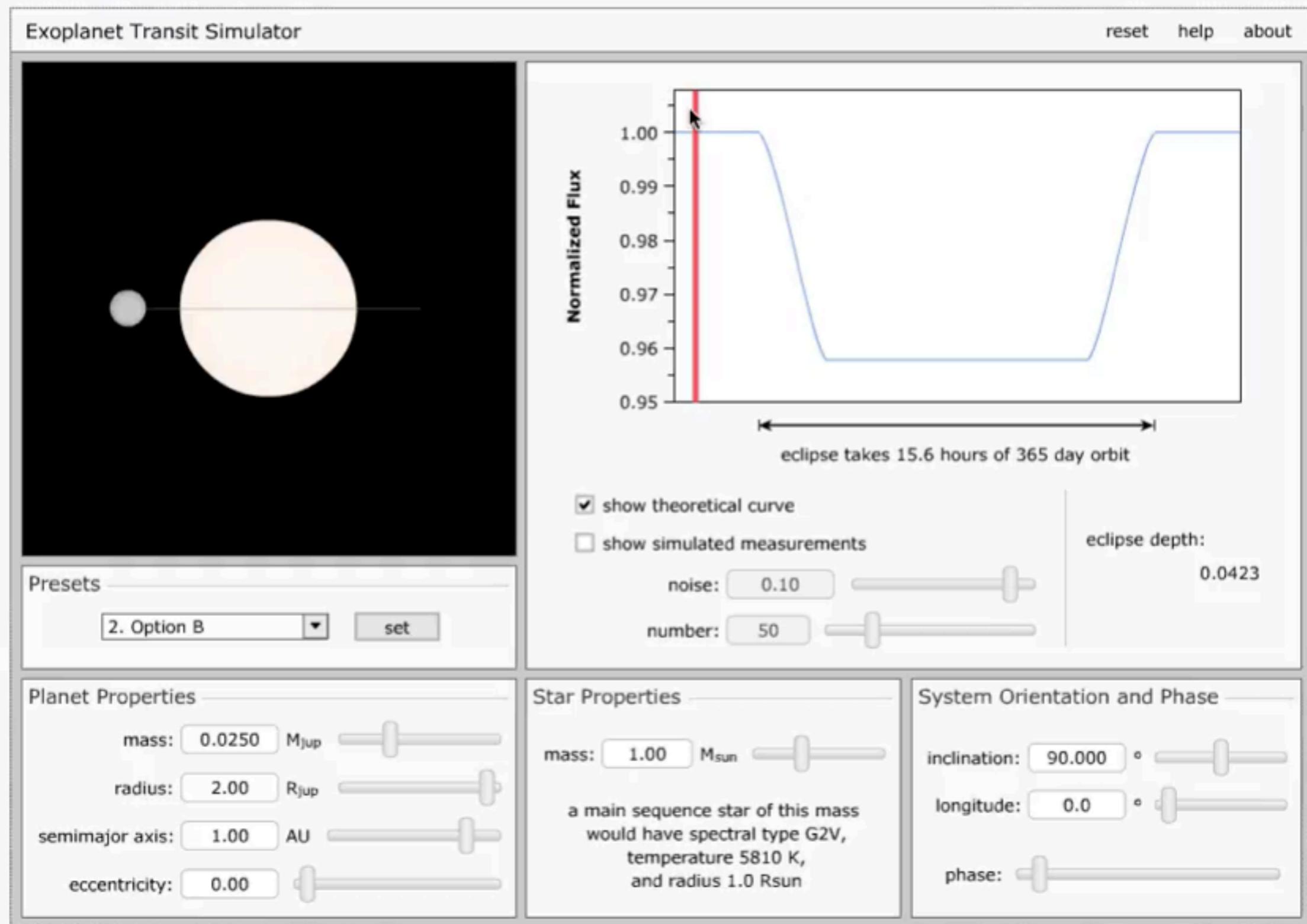
Home > NAAP Labs > Extrasolar Planets > Transit Simulator

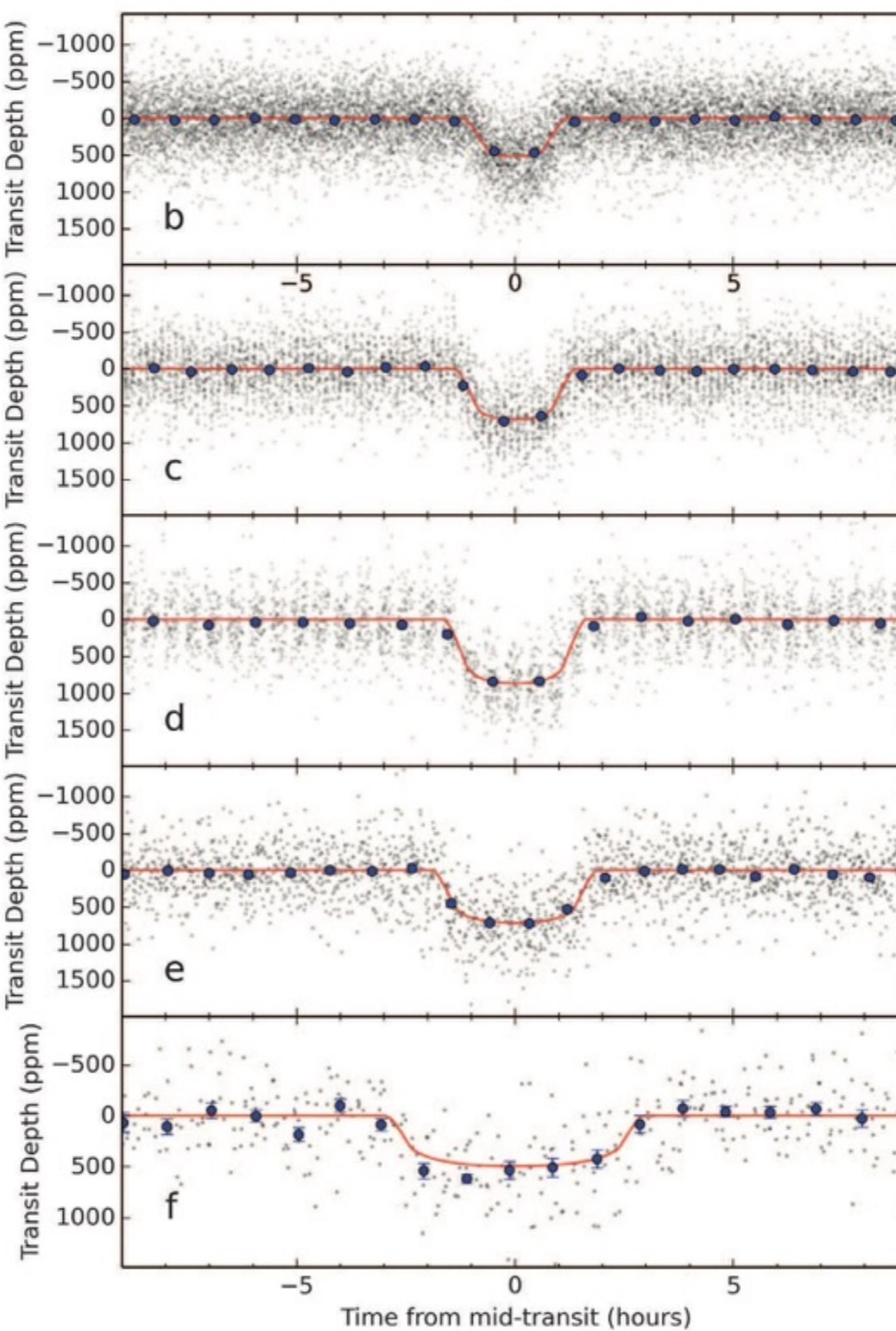


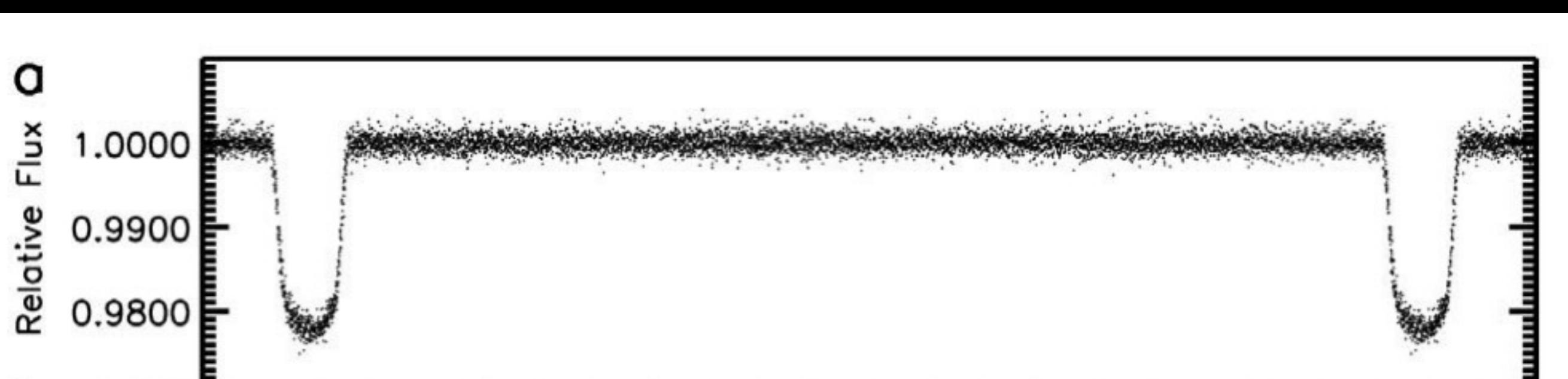
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Home > NAAP Labs > Extrasolar Planets > Transit Simulator







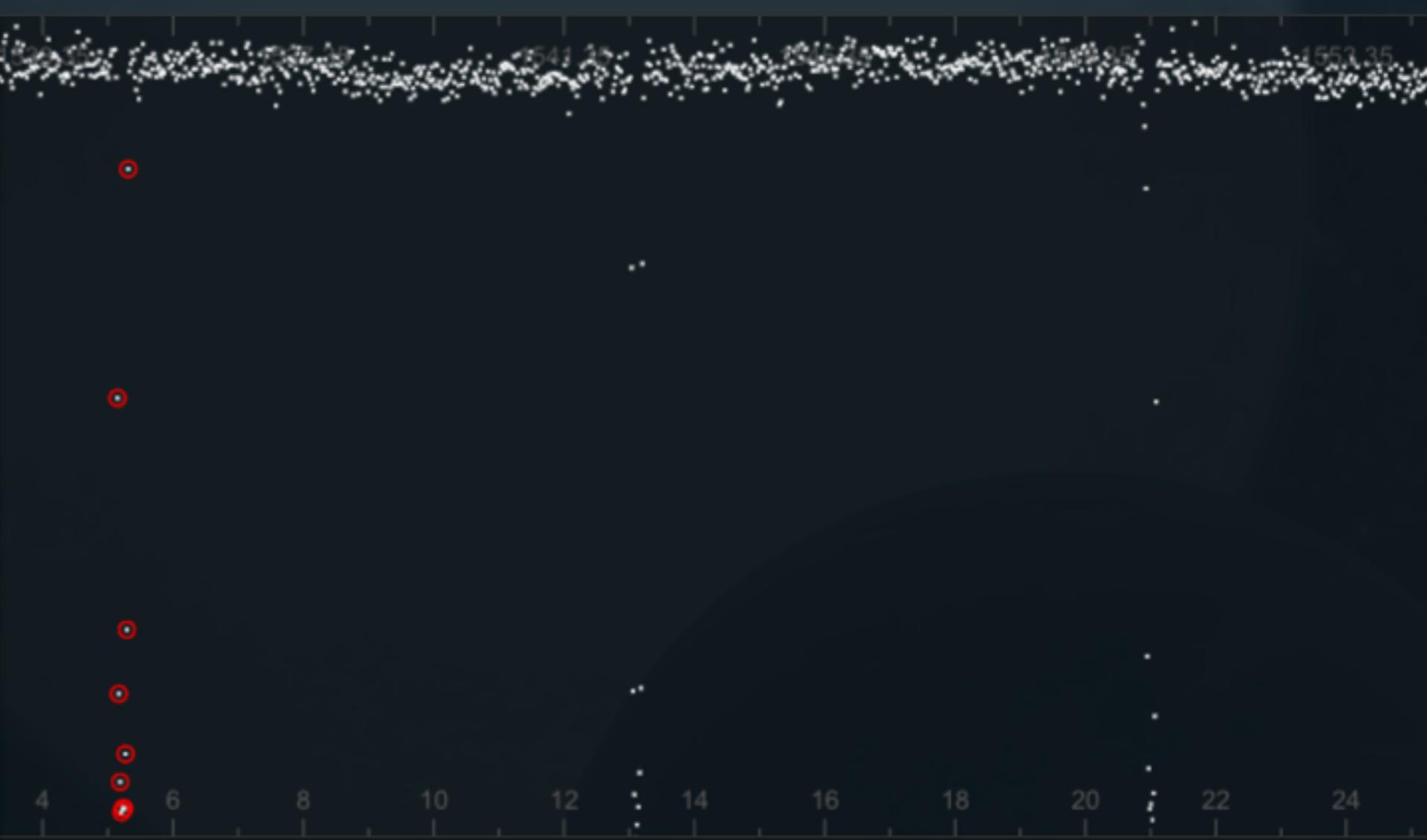
Do you see a transit?

If so, highlight it on the light curve below!

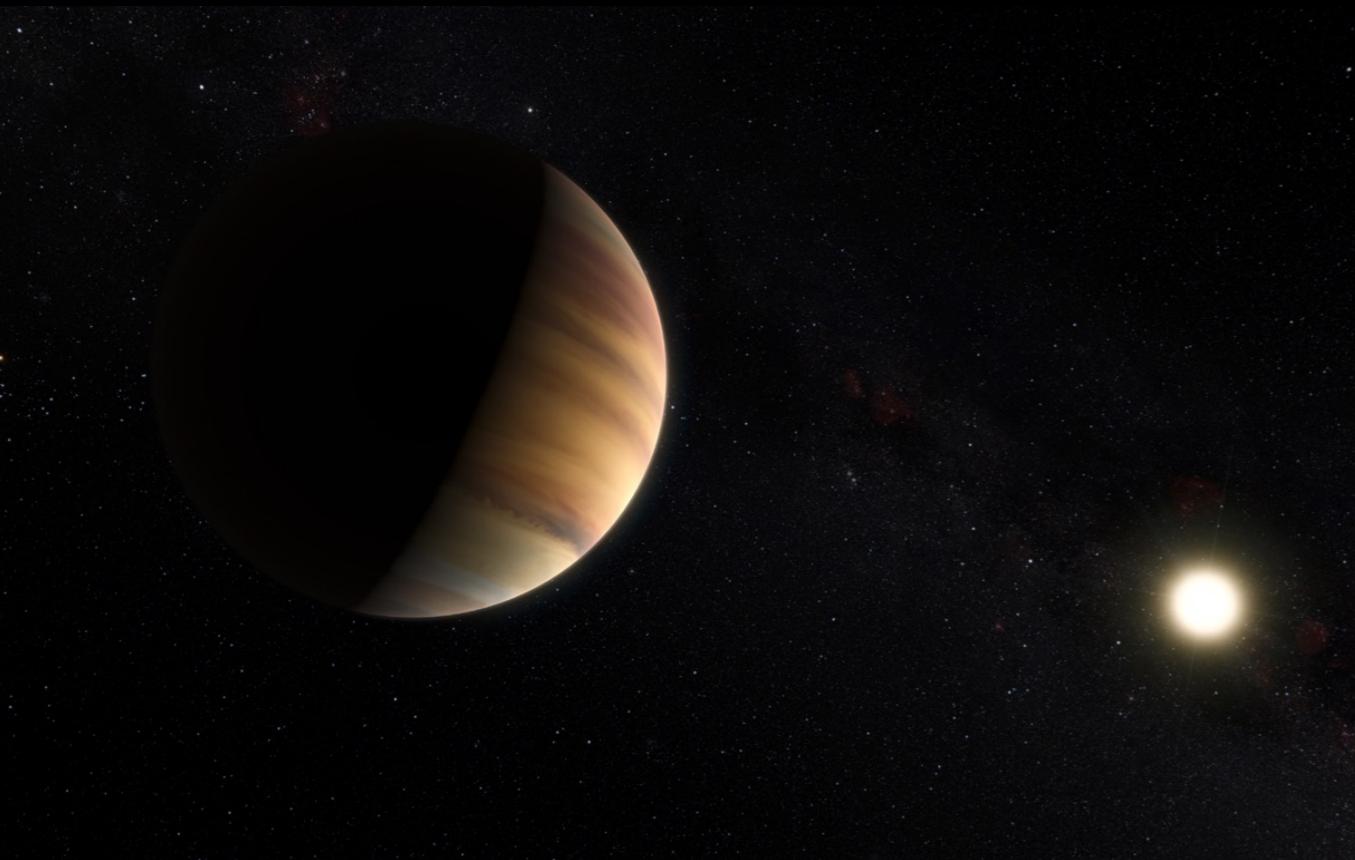
Can you spot
the transits?

Depending on how far the planet is from the star, you may see one or many dips in the light curve. Most transits that you'll typically see span a few hours to a day. Try marking the remaining transits in this example light curve.

Continue

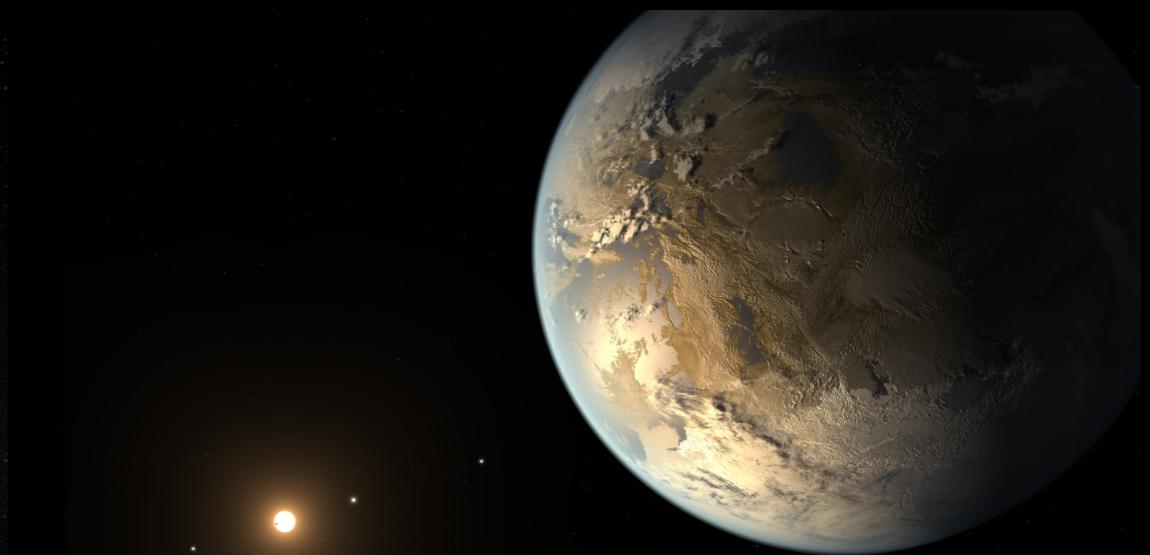


51 Peg b, RV



OMG
We've found
them!

Kepler 186-f, Transit



OMG
Earths! In the
HZ!

Pale red dot: activity?



Photometry

Line width

Doppler



Proxima b

1 2 3

4 5 6

7 8 9

10 11 12

13 14 15

16 17 18

19 20 21

22 23 24

25 26 27

28 29 30

31 32 33

34 35 36

37 38 39

40 41 42

43 44 45

46 47 48

49 50 51

52 53 54

55 56 57

58 59 60

61 62 63

64 65 66

67 68 69

70 71 72

73 74 75

76 77 78

79 80 81

82 83 84

86 87 88

89 90 91

92 93 94

95 96 97

98 99 100

101 102 103

104 105 106

107 108 109

110 111 112

113 114 115

116 117 118

119 120 121

122 123 124

125 126 127

128 129 130

131 132 133

134 135 136

137 138 139

140 141 142

143 144 145

146 147 148

149 150 151

152 153 154

155 156 157

158 159 160

161 162 163

164 165 166

167 168 169

170 171 172

173 174 175

176 177 178

179 180 181

184 185 186

191 192 193

197 198 199

203 204 205

208 209 210

214 215 216

218 219 220

224 225 226

228 229 230

234 235 236

238 239 240

244 245 246

248 249 250

254 255 256

258 259 260

264 265 266

268 269 270

274 275 276

282 283 284

288 289 290

294 295 296

298 299 300

304 305 306

312 313 314

318 319 320

324 325 326

332 333 334

338 339 340

344 345 346

352 353 354

358 359 360

364 365 366

372 373 374

378 379 380

384 385 386

392 393 394

398 399 400

404 405 406

412 413 414

418 419 420

424 425 426

432 433 434

438 439 440

444 445 446

452 453 454

458 459 460

464 465 466

472 473 474

478 479 480

484 485 486

492 493 494

498 499 500

504 505 506

512 513 514

518 519 520

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572 573 574

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584 585 586

592 593 594

598 599 600

604 605 606

612 613 614

618 619 620

624 625 626

632 633 634

638 639 640

644 645 646

652 653 654

658 659 660

664 665 666

672 673 674

678 679 680

684 685 686

692 693 694

698 699 700

704 705 706

712 713 714

718 719 720

724 725 726

732 733 734

738 739 740

744 745 746

752 753 754

758 759 760

764 765 766

772 773 774

778 779 780

784 785 786

792 793 794

798 800 800

804 805 806

812 813 814

818 819 820

824 825 826

832 833 834

838 839 840

844 845 846

852 853 854

858 859 860

864 865 866

872 873 874

878 879 880

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912 913 914

918 919 920

924 925 926

932 933 934

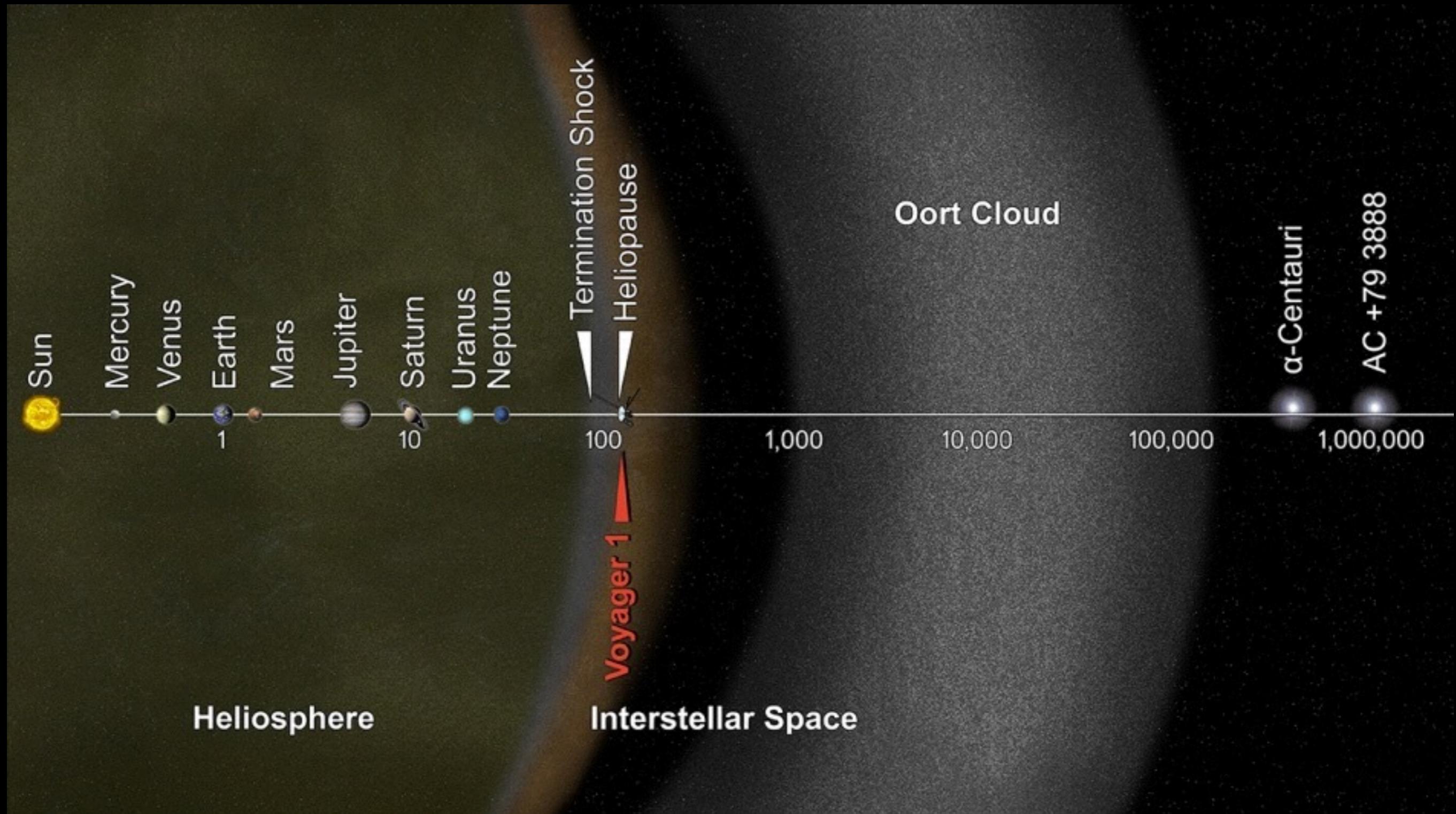
938 939 940

944 945 946

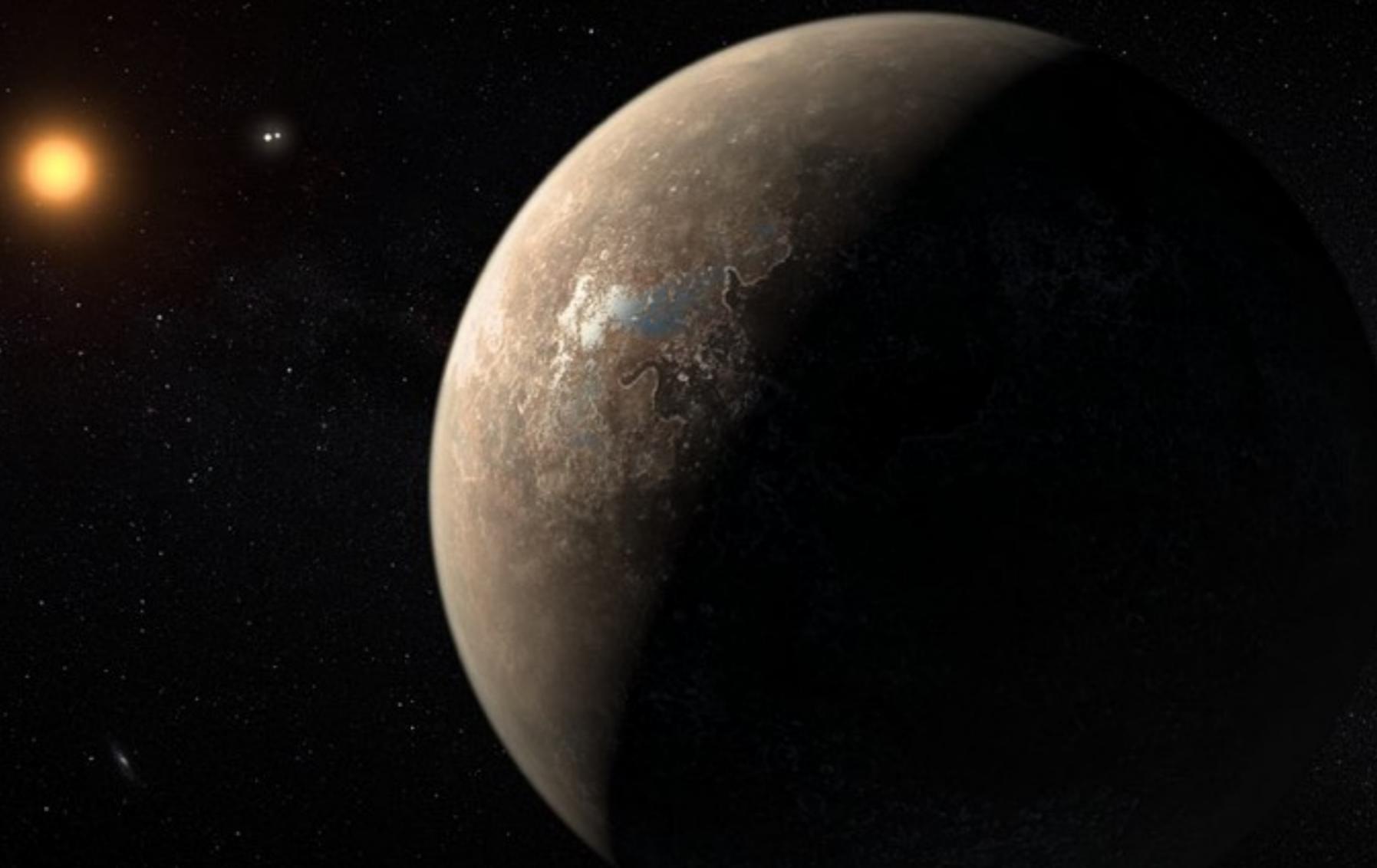
952 953 954

958 959 960

964 965 966

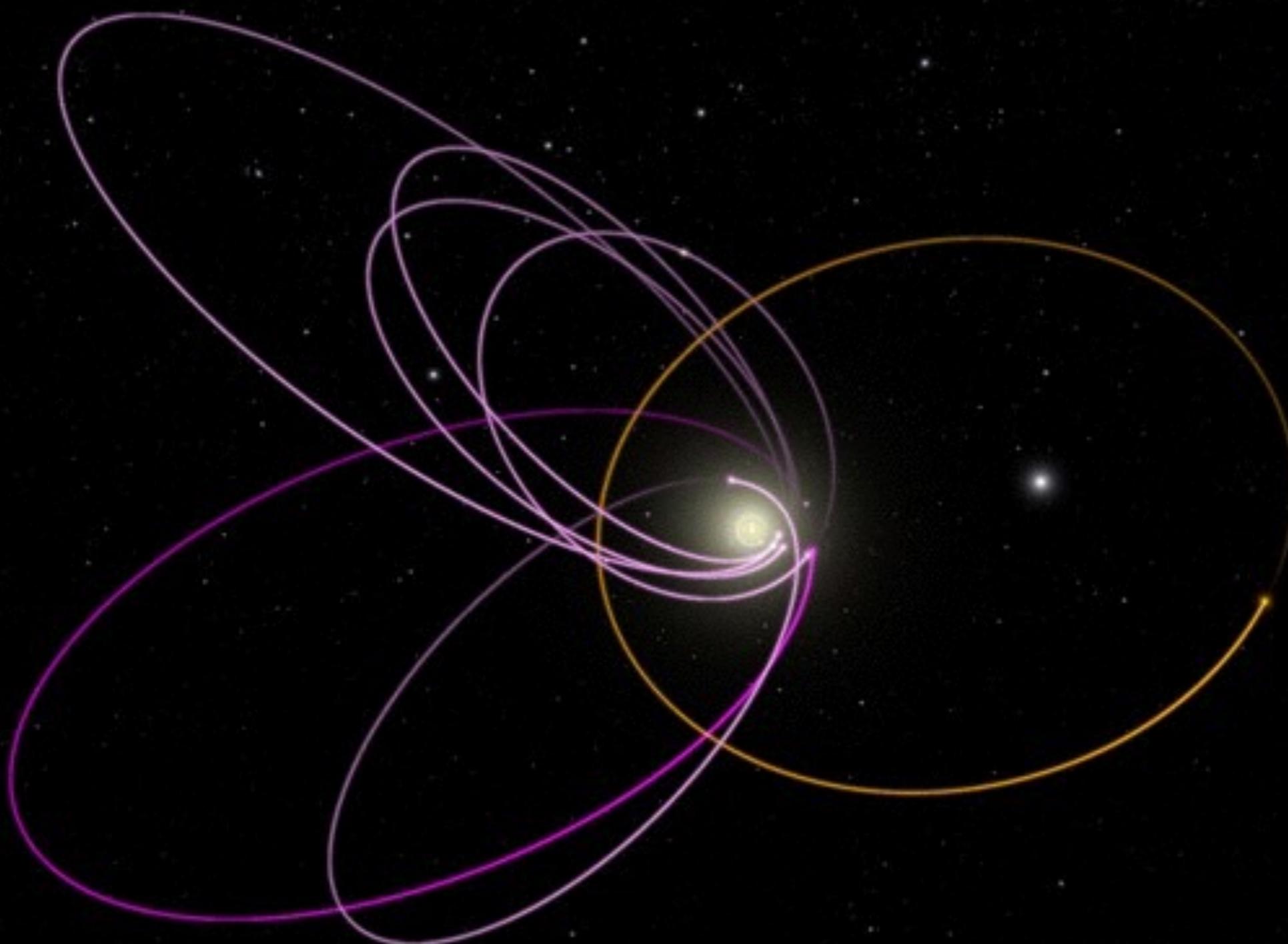


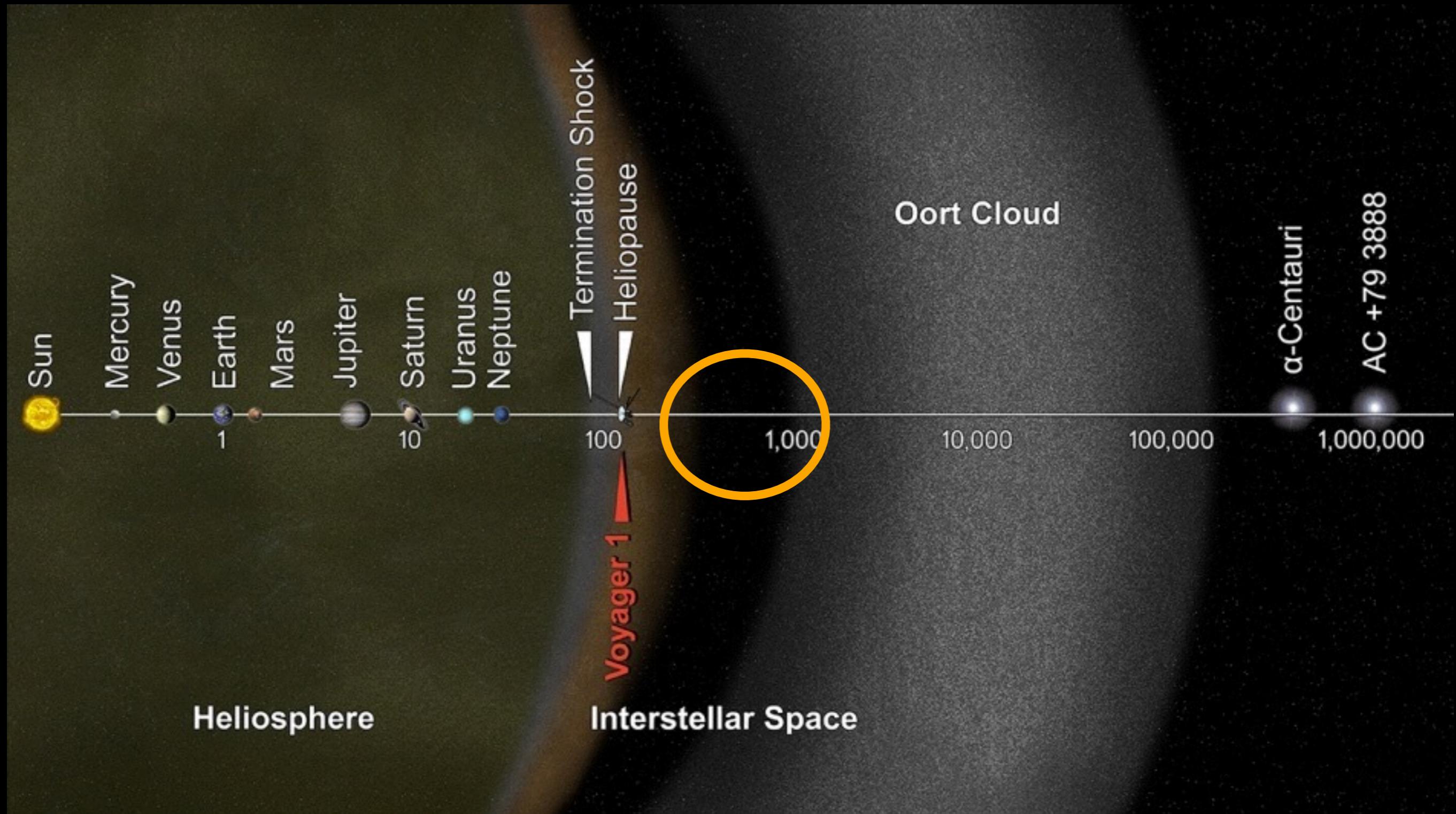
Proxima b





Planet 9 ?

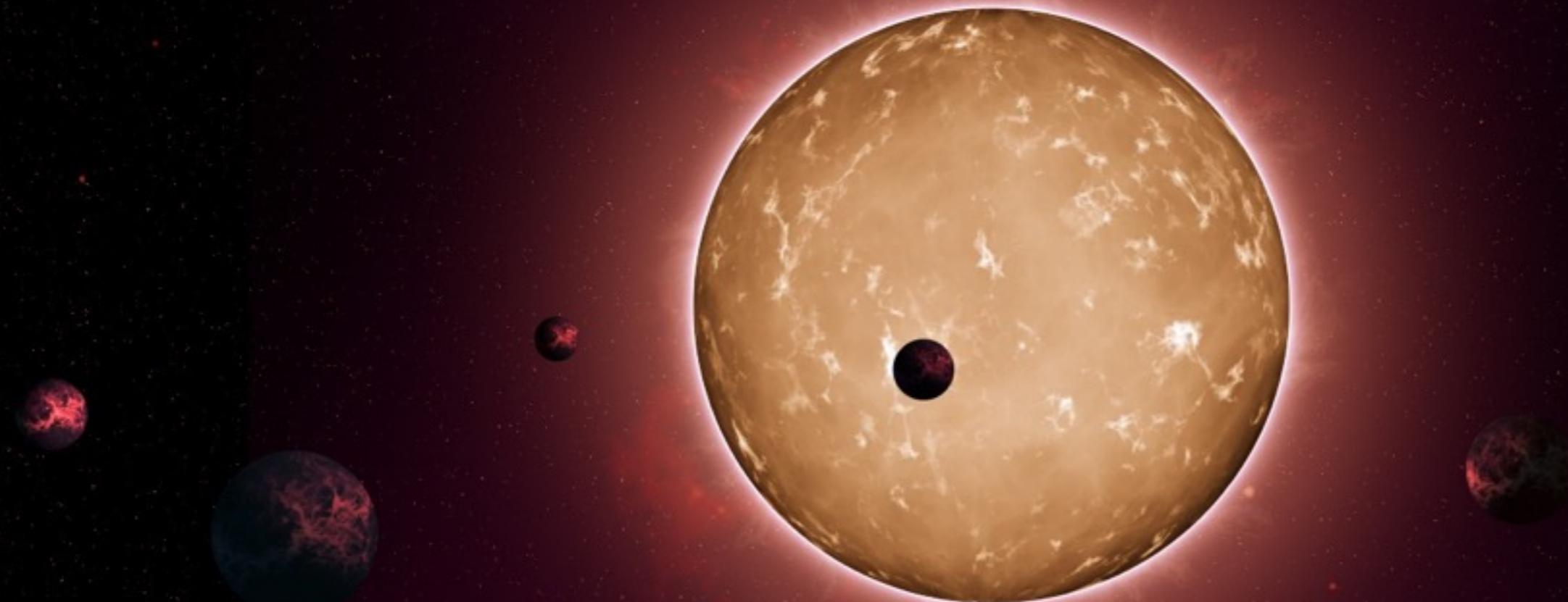


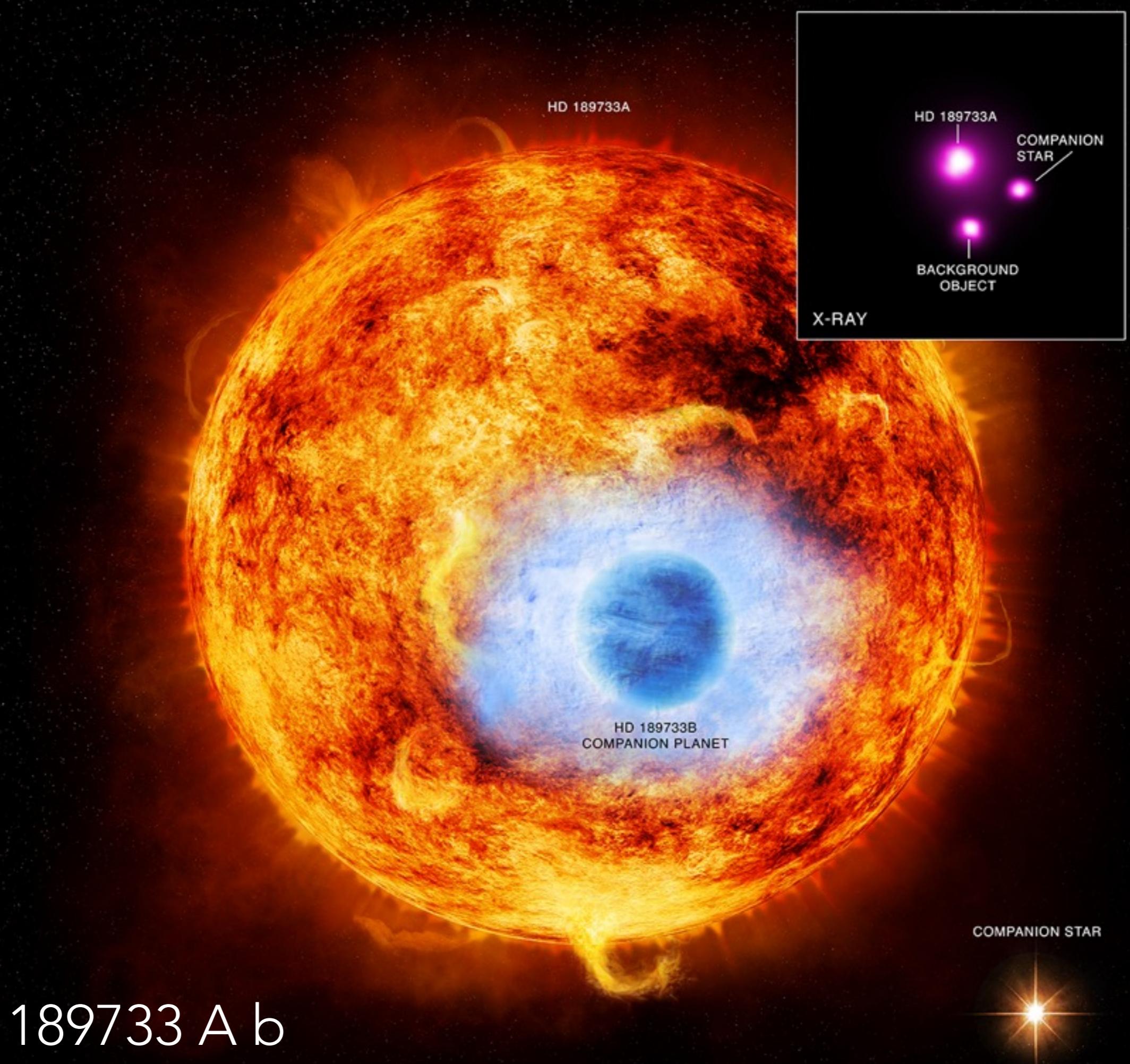


HIP 57050 b

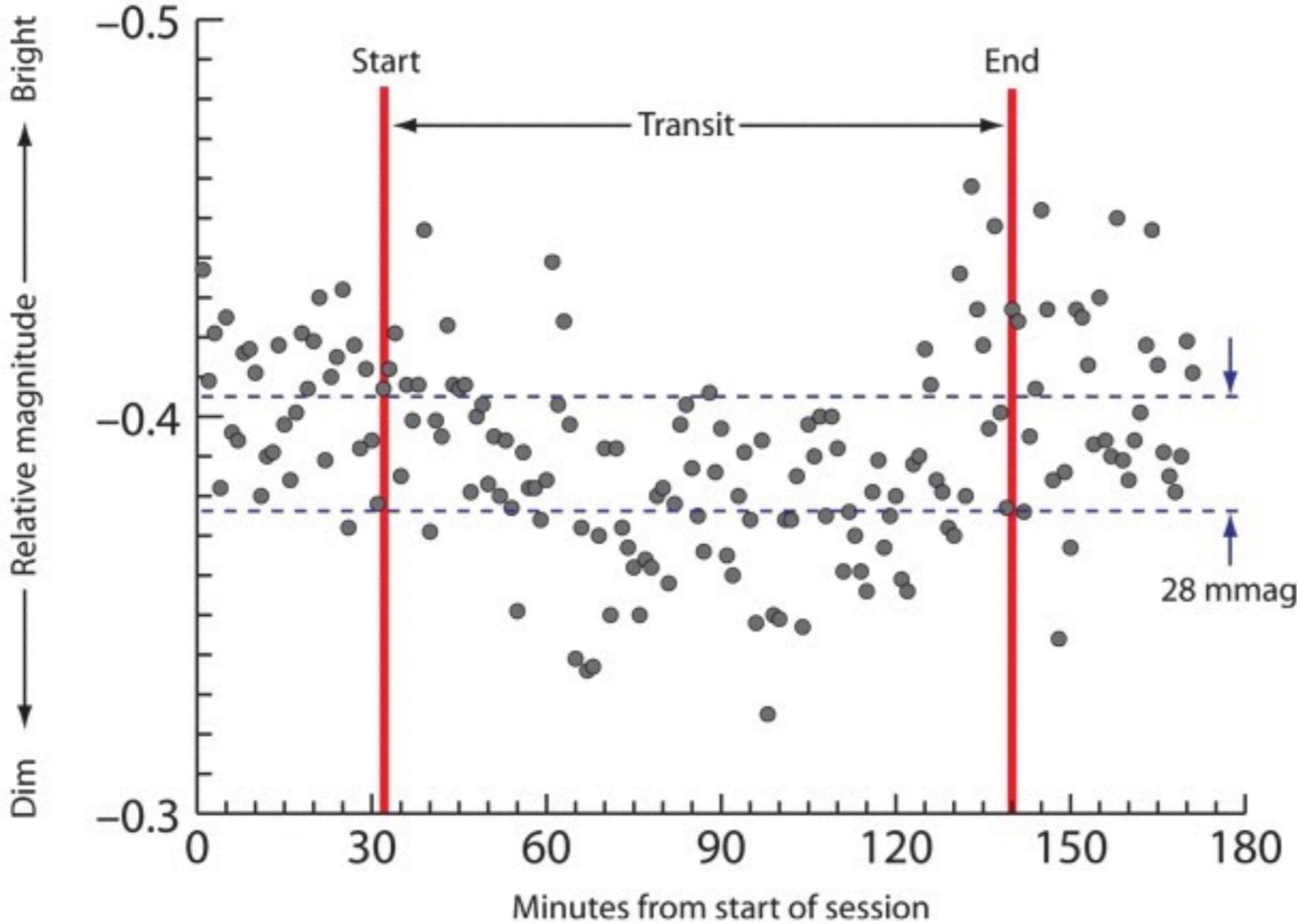


Kepler-444 b,c,d,e,f



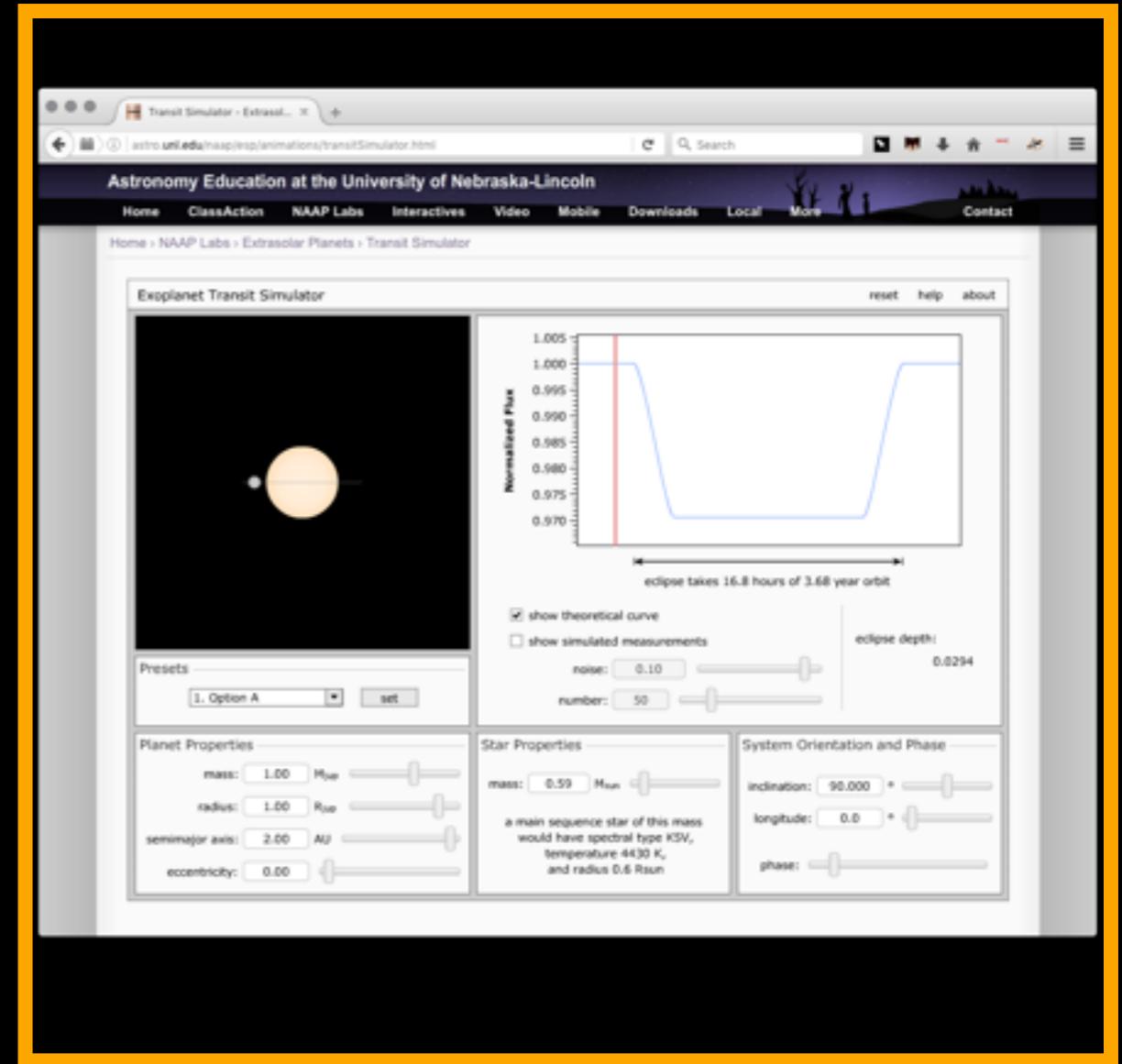
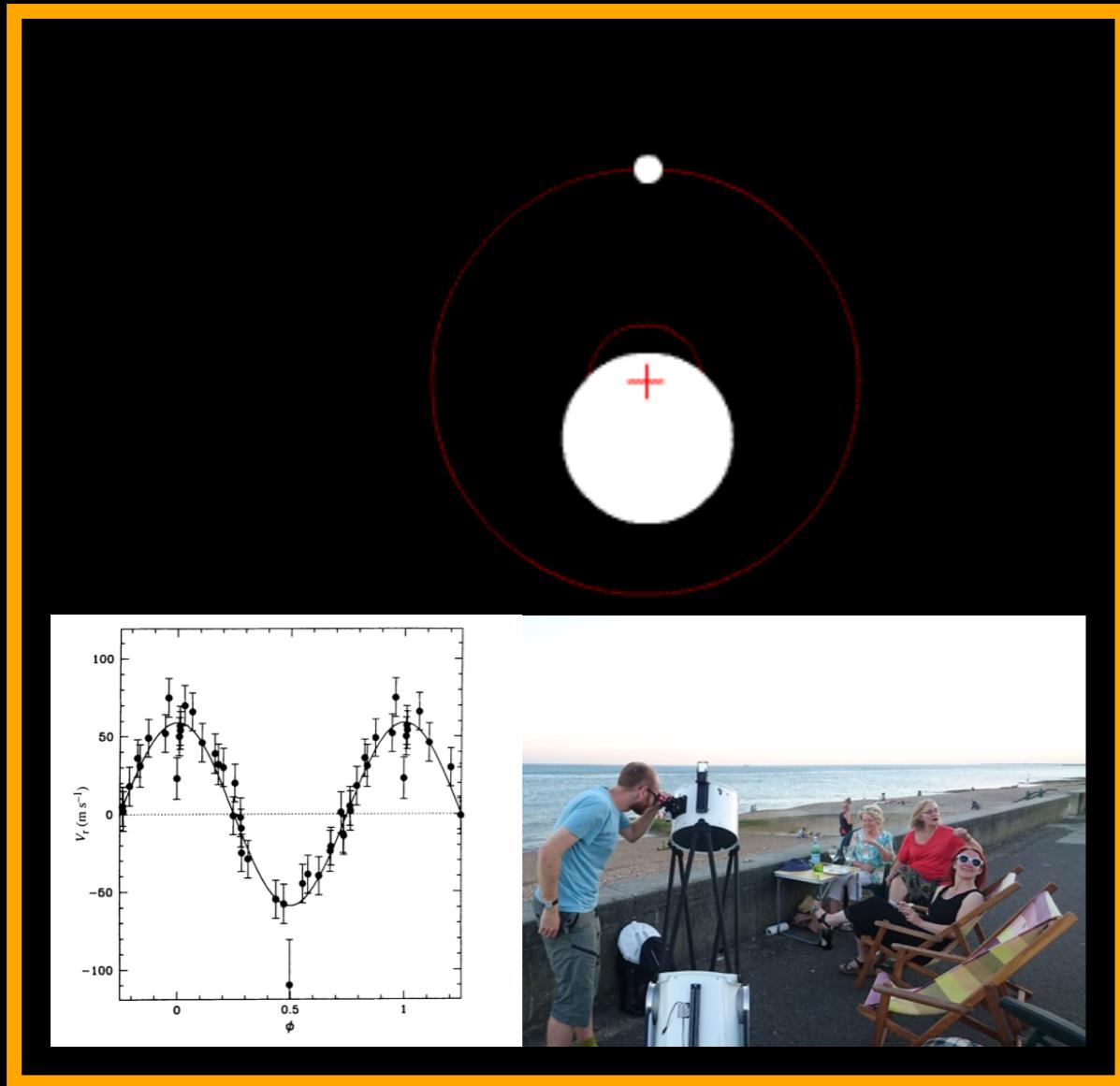


HD 189733 A b



- First! (51 Peg b)
- First Earth-ish (Kepler-186 f)
- Closest, Closest HZ (Prox b)
- Exomoons & weird orbits (HIP 57050b)
- Ancient (Kepler-444)
- One we could detect (HD 189733b)

RV



Transits



While there is much debate over which exoplanet discovery is considered the "first," one stands out from the rest. In 1995, scientists discovered 51 Pegasi b, forever changing the way we see the universe and our place in it. The exoplanet is about half the mass of Jupiter, with a seemingly impossible, star-hugging orbit of only 4.2 Earth days. Not only was it the first planet confirmed to orbit a sun-like star; it also ushered in a whole new class of planets called Hot Jupiters: hot, massive planets orbiting closer to their stars than Mercury. Today, powerful observatories like NASA's Kepler space telescope, will continue the hunt of distant planets.

RELAX ON KEPLER-16b



Like Luke Skywalker's planet "Tatooine" in Star Wars, Kepler-16b orbits a pair of stars. Depicted here as a terrestrial planet, Kepler-16b might also be a gas giant like Saturn. Prospects for life on this unusual world aren't good, as it has a temperature similar to that of dry ice. But the discovery indicates that the movie's iconic double-sunset is anything but science fiction.

Transiting Exoplanet Survey Satellite

