

**Results of statistical inference: Tables A1-A12.
Revisiting the distributions of Jupiter's irregular
moons: I. physical characteristics**

by
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Tables A1-A12.

Table 1: Statistical inference results for the physical characteristics of the irregular moons in the Ananke group

	Beta	Birnbaum-Saunders	Burr	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic	
h	0	0	0	1	0	0	0	1	0	0	
p	0.2928	0.4122	0.1886	0.0363	0.3214	0.1150	0.1097	0.0357	0.5268	0.1830	
parameter	$\alpha=1.45517$ $b=49.6761$	$\beta=2.16946$ $\gamma=0.791924$	null	$\mu=4.90065$ $\sigma=5.0995$	$a=1.54105$ $b=1.82235$	$k=4.93045$ $\theta=0$ $\mu=1.05744$	$k=0.140412$ $\sigma=2.40161$	$\mu=0$ $\lambda=3.873$ $\sigma=4.44794$	$\lambda=2.80833$ $\mu=2.01969$ $\sigma=1.21395$	$\mu=0$ $\lambda=3.873$ $\sigma=4.44794$	
Equatorial radius (km)	$a \in [0.366197, 3.06775]$ confidence 5.78243 interval $b \in [22.9232, 107.651]$	$\beta \in [1.27117, 5.06775]$ confidence 5.78243 interval $\gamma \in [0.474937, 1.10891]$		$\mu \in [1.81488, 7.98642]$ $\sigma \in [1.81488, 7.98642]$ $\mu \in [1.81488, 7.98642]$ $\sigma \in [1.81488, 7.98642]$	$a \in [0.742722, 3.19749]$ $b \in [1.81488, 7.98642]$ $\mu \in [1.81488, 7.98642]$ $\sigma \in [1.81488, 7.98642]$	$k \in [0.360149, 0.640972]$ $\theta \in [-\lnf, 4.94889]$ $\mu \in [-\lnf, 0.28211]$ $\sigma \in [-\lnf, 1.05829]$	$k=0.140412$ $\sigma=2.40161$ $\mu=0$ $\lambda=3.873$ $\sigma=4.44794$	$\mu=0$ $\lambda=3.873$ $\sigma=4.44794$	$\lambda=2.80833$ $\mu=2.01969$ $\sigma=1.21395$	$\mu \in [0.949035, 3.09035]$ $\sigma \in [0.775014, 2.06104]$	
		Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull
h	0	0	0	0	0	0	1	1	1	0	0
p	0.8343	0.7164	0.0886	0.0719	0.0602	0.0007	B = 3.14517	$s=0.0510532$ $\sigma=3.145$	$\beta=0.999686$ $c=0.0204006$	$\mu=1.74651$ $\sigma=0.632795$ $\nu=1.31617$	0.3132
parameter	$\mu=0.582917$ $\sigma=0.364002$	$\mu=0.674309$ $\sigma=0.747503$	$\mu=0.401858$ $\omega=19.7842$	$\mu=2.80833$ $\sigma=3.60264$	$\lambda=2.80833$				$\beta=0.999686$ $c=0.0204006$	$\mu=1.74651$ $\sigma=0.632795$ $\nu=1.31617$	0.3132
Equatorial radius (km)	$\mu \in [0.23278, 0.933054]$ confidence 0.933054 interval $\sigma \in [0.225066, 0.388703]$	$\mu \in [0.199368, 1.14925]$ confidence 0.933054 interval $\sigma \in [0.529527, 1.26917]$	$\mu \in [0.210303, 0.767892]$ confidence 0.933054 interval $\omega \in [8.10398, 48.2989]$	$\mu=2.80833$ $\sigma=3.60264$	$\lambda=2.80833$	$B=3.14517$	$B \in [2.45584, 4.37541]$	$s \in [0, 50.2624]$ $\sigma \in [2.30413, 4.29275]$	$\beta=0.999686$ $c=0.0204006$	$\mu=1.74651$ $\sigma=0.632795$ $\nu=1.31617$	0.3132
		Birnbaum-Saunders	Burr	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic	
h	0	0	0	1	0	0	0	1	0	0	
p	0.0910	0.4051	0.1872	0.0365	0.3151	0.1159	0.1090	0.0349	0.5178	0.1824	
parameter	$a=0.831741$ $\sigma=2.96802$	$\beta=13.6468$ $\gamma=0.791202$	$\mu=17.6583$ $\sigma=32.0513$	$\mu=30.8088$ $\sigma=32.0513$	$a=1.54285$ $b=11.4453$	$k=4.23557$ $\mu=0.355619$ $\theta=0$	$k=0.140068$ $\sigma=15.1073$ $\theta=0$	$\mu=0$ $\sigma=27.9605$	$\mu=17.6583$ $\lambda=24.4032$	$\mu=12.7008$ $\sigma=7.6288$	
Equatorial circumference (km)	$a \in [0.116243, 5.95126]$ confidence 5.95126 interval $\sigma \in [1.45848, 6.03995]$	$\beta \in [8.00052, 19.293]$ confidence 5.95126 interval $\gamma \in [0.474505, 1.1079]$	$\mu \in [11.4142, 50.2035]$ confidence 5.95126 interval $\sigma \in [22.2754, 46.1175]$	$\mu \in [11.4142, 50.2035]$ confidence 5.95126 interval $\sigma \in [22.2754, 46.1175]$	$a \in [0.743542, 3.20142]$ $b \in [4.84114, 27.0585]$	$k \in [-\lnf, 4.26322]$ $\mu \in [-\lnf, 0.402626]$ $\sigma \in [-\lnf, 1.2804]$ $\theta \in [32.0185]$	$k=0.140068$ $\sigma=15.1073$ $\theta=0$	$\mu=0$ $\sigma=27.9605$	$\mu \in [9.15951, 26.1572]$ $\lambda=4.87693$ $\sigma=7.6288$	$\mu \in [5.97267, 19.4288]$ $\sigma \in [4.49316, 12.9527]$	
		Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull
h	0	0	0	1	1	1	1	1	1	0	0
p	0.8327	0.7079	0.0868	0.0708	0.0007	0.0007	B = 19.7711	$s=0.593626$ $\sigma=19.7676$	$\beta=0.999999$ $c=0.153786$	$\mu=10.9878$ $\sigma=3.97841$ $\nu=1.31755$	0.3119
parameter	$\mu=2.42182$ $\sigma=0.363511$	$\mu=2.51338$ $\sigma=0.746847$	$\mu=0.402163$ $\omega=781.791$	$\mu=17.6583$ $\sigma=22.6429$	$\lambda=17.6583$				$\beta=0.999999$ $c=0.153786$	$\mu=10.9878$ $\sigma=3.97841$ $\nu=1.31755$	0.3119
Equatorial circumference (km)	$\mu \in [2.07218, 2.77145]$ confidence 2.77145 interval $\sigma \in [0.224753, 0.587933]$	$\mu \in [2.03886, 2.9879]$ confidence 2.77145 interval $\sigma \in [0.529063, 1.26805]$	$\mu \in [0.210453, 0.768507]$ confidence 0.402163 interval $\omega \in [320.345, 1907.93]$	$\mu=17.6583$ $\sigma=22.6429$	$\lambda=17.6583$	$B=19.7711$	$B \in [15.4378, 27.5046]$	$s \in [0, 171.451]$ $\sigma \in [14.4829, 26.9807]$	$\beta=0.999999$ $c=0.153786$	$\mu=10.9878$ $\sigma=3.97841$ $\nu=1.31755$	0.3119

Table 2: Statistical inference results for the physical characteristics of the irregular moons in the Ananke group (Cont'd)

	Beta	Birnbaum-Saunders	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	1	1	1	1	1	0	1	0	1
P	0.0419	0.0187	0	0.0037	0.0445	0.8336	0	0.5360	0.108
parameter	a=0.208363	$\beta=176.083$	$\mu=2934.8$	a=0.211133	k=2.72951	k=1.60421	$\mu=0$	$\lambda=10.0886$	$\mu=212.134$
confidence interval	b=20.1947	$\gamma=4.61167$	$\sigma=4775.91$	b=4700.82	$\theta=0$	$\theta=0$	$\sigma=3318.51$	$\lambda=10.0886$	$\sigma=955.653$
Volume (km^3)	a \in [0.0219923, 1.97411]	$\beta\in$ [-9.48711, 361.652]	$\mu\in$ [605.12, 5825.45]	a \in [0.114075, 0.39072]	b \in [0.114075, 0.39072]	k \in [0.225088, 2.98334]	$\mu\in$ [4577.28, 6562.28]	$\lambda\in$ [2379.66, 542.91]	$\sigma\in$ [1596.103, 1020.37]
	b \in [4.54615, 89.7083]	$\gamma\in$ [2.31333, 6.91001]	$\sigma\in$ [3324.29, 18623.1]	b \in [1186.57, 18623.1]	$\theta\in$ [-Inf, 4.02027]	$\theta=0$	$\mu\in$ [2.01619, 18.1611]	$\lambda\in$ [542.91, 682.18]	$\sigma\in$ [542.91, 682.18]
	Loglogistic	Lognormal Nakagami	Gaussian	Rayleigh	Rician	Stable	t Location-Scale	Weibull	
h	0	1	1	1	1	1	0	0	
P	0.8339	0.7342	0.0017	0	0	0.0038	0.1726	0.3247	
parameter	$\mu=3.17586$	$\sigma=0.0884047$	$\mu=992.5$	B=2346.54	s=78.9548	$\alpha=0.401798$	$\mu=19.3542$	A=105.382	
confidence interval	$\sigma\in$ [1.10596, 3.44413]	$\omega=1.10125e+07$	$\sigma=3307.43$		$\sigma=2346.03$	$\beta=0.999926$	$\sigma=18.8123$	B=0.364521	
Volume (km^3)	$\mu\in$ [2.11064, 4.87918]	$\mu\in$ [0.0490576, 0.159311]	$\mu\in$ [-1108.94, 3093.94]		s \in [0.14590, 4]	$\alpha\in$ [0.364998, 0.438598]	$\mu\in$ [-16.1681, 54.8764]	A \in [20.11, 552.234]	
	$\sigma\in$ [0.684312, 1.7874]	$\omega\in$ [1.64233e+06, 7.38438e+07]	$\sigma\in$ [2342.97, 5615.61]		$\sigma\in$ [1735.89, 3170.64]	$\beta\in$ [0.999783, 1]	$\mu\in$ [0.249783, 0.531963]	B \in [0.249783, 0.531963]	
	Beta	Birnbaum-Saunders	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0	1	0	0	0	1	0	1
P	0.0766	0.0558	0.0007	0.0886	0.1235	0.4855	0	0.5665	0.0231
parameter	a=0.381449	$\beta=102.574$	$\mu=658.463$	a=0.401879	k=4.58301	k=0.893607	$\mu=0$	$\mu=248.618$	$\mu=84.7982$
confidence interval	b=13.9676	$\gamma=2.06393$	$\sigma=1007.19$	b=618.638	$\mu=17.25$	$\theta=0$	$\sigma=713.41$	$\lambda=29.9621$	$\sigma=204.616$
Surface area (km^2)	a \in [0.0527226, 2.75979]	$\beta\in$ [21.6678, 183.481]	$\mu\in$ [48.8659, 1268.06]	a \in [0.210313, 0.767934]	k \in [-Inf, 4.60434]	k \in [8.03063e-05, 1.78713]	$\mu=0$	$\mu\in$ [156.582, 653.817]	$\mu\in$ [88.9416, 258.538]
confidence interval	b \in [5.1102, 38.1771]	$\gamma\in$ [1.19523, 2.93264]	$\sigma\in$ [700.989, 1447.14]	b \in [205.377, 1863.46]	$\sigma\in$ [-Inf, 21.3791]	$\theta\in$ [16.9634, 108.732]	$\mu\in$ [511.576, 1177.65]	$\lambda\in$ [6.98788, 53.9364]	$\sigma\in$ [116.73, 358.671]
	Loglogistic	Lognormal Nakagami	Gaussian	Rayleigh	Rician	Stable	t Location-Scale	Weibull	
h	0	0	1	1	1	0	0	0	
P	0.8342	0.7162	0.0052	0	0	0.2316	0.3887	0.3132	
parameter	$\mu=3.69694$	$\mu=0.143727$	$\mu=248.618$	B=504.457	s=22.3343	$\alpha=0.4$	$\mu=38.1627$	A=105.286	
confidence interval	$\sigma=0.727939$	$\omega=508954$	$\sigma=698.422$		$\sigma=504.267$	$\beta=0.999921$	$\sigma=23.9888$	B=0.548151	
Surface area (km^2)	$\mu\in$ [2.99674, 4.82958]	$\mu\in$ [0.0787469, 0.262326]	$\mu\in$ [-195.138, 692.373]	a \in [393.894, 257.539]	s \in [0.2380, 681.289]	$\alpha\in$ [0.396894, 0.403106]	$\mu\in$ [-1.4875, 64.838]	A \in [35.9884, 325.825]	
confidence interval	$\sigma\in$ [1.05899, 1.17731]	$\omega\in$ [1.14428, 2.6373e+06]	$\sigma\in$ [494.789, 1185.83]	B \in [701.777, 701.777]	$\sigma\in$ [373.241, 681.289]	$\beta\in$ [0.996813, 1]	$\mu\in$ [11.5988, 49.4096]	B \in [0.375787, 0.799575]	

Table 3: Statistical inference results for the physical characteristics of the irregular moons in the Ananke group
(Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0	0	0	1	0	1	0	1	0	0
p	0.1338	0.1812	0.0447	0.0831	0.0447	0.1346	0.0246	0.0774	0.0432	0.2267	0.2248
parameter	a=1.96	$\beta=0.00189402$	null	$\mu=0.00233333$	$\mu=0.00377557$	a=1.96818	k=3.67484	k=0.0172825	$\mu=0.0172825$	$\mu=0.00233333$	$\mu=0.00180765$
confidence interval	b=837.502	$\gamma=0.695777$	$\sigma=0.00349733$	$\sigma=0.00349733$	b=0.00118553	$\mu=0.00101412$	$\mu=0.00101412$	$\theta=0$	$\sigma=0.00229286$	$\lambda=0.00430034$	$\sigma=0.000891925$
Surface gravity (m/s^2)	a \in [0.573087, 6.70331]	$\beta \in$ [0.00119285, 0.0025952]		$\mu \in$ [0.00142262, 0.00589155]	$\mu \in$ [0.00165959, 0.00589155]	a \in [0.93686, 4.13482]	k \in [-Inf, 3.76664]	k \in [-0.45755, 0.492115]	$\mu=0$	$\mu \in$ [0.00136079, 0.00330588]	$\mu \in$ [0.00100912, 0.00260617]
confidence interval	b \in [387.457, 1810.29]	$\gamma \in$ [0.417384, 0.974169]	$\sigma \in$ [0.00242845, 0.00503667]	$\sigma \in$ [0.00242845, 0.00503667]	$\sigma \in$ [0.000509347, 0.00275936]	$\mu \in$ [-Inf, 0.00101412]	$\sigma \in$ [-Inf, 6.50528e-05]	$\sigma \in$ [0.00109551, 0.00479883]	$\sigma=0.00551619$	$\lambda \in$ [0.000859365, 0.00774132]	$\sigma \in$ [0.000530064, 0.00150082]
Logistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull		
h	0	0	1	1	1	1	1	0	0	0	0
p	0.4831	0.3234	0.0429	0.0402	0.0011	0.0011	0.0129	0.2927	0.1637	0.2267	0.1637
parameter	$\alpha=-6.41229$	$\mu=-6.33551$	$\mu=0.500655$	$\mu=0.00233333$	$\lambda=0.00233333$	B=0.00236291	s=8.30018e-05	$\alpha=0.4$	$\mu=0.00163439$	A=0.0025389	$\mu=0.00163439$
confidence interval	$\beta=0.337578$	$\sigma=0.672955$	$\omega=1.11667e-05$	$\sigma=0.00249848$	$\lambda=0.00233333$	$\sigma=0.00236291$	$\sigma=0.00236234$	$\beta=1$	$\sigma=0.000617881$	B=1.24051	$\sigma=0.000617881$
Surface gravity (m/s^2)	$\alpha \in$ [-6.74044, -6.08413]	$\mu \in$ [-6.76309, -5.90794]	$\mu \in$ [-Inf, Inf]	$\mu \in$ [0.000745872, 0.00392079]	$\lambda \in$ [2.90788e-59, 0.312293]	$\mu \in$ [0.00184503, 0.00328716]	$\sigma \in$ [0.0014004, 0.00314004]	c \in [0, Inf]	$\mu \in$ [0.00108386, 0.00218492]	A \in [0.00156068, 0.00413029]	$\mu \in$ [0.00156068, 0.00413029]
confidence interval	$\beta \in$ [0.210095, 0.542414]	$\sigma \in$ [0.476718, 1.14259]	$\omega \in$ [-Inf, Inf]	$\sigma \in$ [0.00176991, 0.00424212]	$\sigma \in$ [0.00242845, 0.00503667]	$\mu \in$ [-Inf, Inf]	$\sigma \in$ [-Inf, Inf]	$\mu \in$ [-Inf, Inf]	$\mu \in$ [0.58783, 4.20145]	B \in [0.848542, 1.81355]	$\sigma \in$ [0.58783, 4.20145]
Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic	
h	0	0	0	1	0	1	0	1	0	0	
p	0.1338	0.1812	0.0831	0.0447	0.1346	0.0246	0.0774	0.0432	0.2267	0.2248	
parameter	a=1.96	$\beta=0.00189402$	$\mu=0.00377557$	$\mu=0.00377557$	a=1.96818	k=3.67484	k=0.0172825	$\mu=0$	$\mu=0.00233333$	$\mu=0.00180765$	
confidence interval	b=837.502	$\gamma=0.695777$	$\sigma=0.00349733$	$\sigma=0.00349733$	b=0.00118553	$\mu=0.00101412$	$\mu=0.00101412$	$\sigma=0.00229286$	$\lambda=0.00430034$	$\sigma=0.000891925$	
Mass (kg)	a \in [0.573087, 6.70331]	$\beta \in$ [0.00119285, 0.0025952]	$\mu \in$ [0.00142262, 0.00589155]	$\mu \in$ [0.00165959, 0.00589155]	a \in [0.93686, 4.13482]	k \in [-Inf, 3.76664]	k \in [-0.45755, 0.492115]	$\mu=0$	$\mu \in$ [0.00136079, 0.00330588]	$\mu \in$ [0.00100912, 0.00260617]	
confidence interval	b \in [387.457, 1810.29]	$\gamma \in$ [0.417384, 0.974169]	$\sigma \in$ [0.00242845, 0.00503667]	$\sigma \in$ [0.00242845, 0.00503667]	$\mu \in$ [-Inf, 0.00101412]	$\sigma \in$ [-Inf, 6.50528e-05]	$\sigma \in$ [0.00109551, 0.00479883]	$\sigma=0.00551619$	$\lambda \in$ [0.000859365, 0.00774132]	$\sigma \in$ [0.000530064, 0.00150082]	
Logistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull		
h	0	0	1	1	1	1	1	0	0	0	
p	0.4831	0.3234	0.0429	0.0402	0.0011	0.0011	0.0129	0.2927	0.1637	0.1637	
parameter	$\alpha=-6.41229$	$\mu=-6.33551$	$\mu=0.500655$	$\mu=0.00233333$	$\lambda=0.00233333$	B=0.00236291	s=8.30018e-05	$\alpha=0.4$	$\mu=0.00163439$	A=0.0025389	$\mu=0.00163439$
confidence interval	$\beta=0.337578$	$\sigma=0.672955$	$\omega=1.11667e-05$	$\sigma=0.00249848$	$\lambda=0.00233333$	$\sigma=0.00236291$	$\sigma=0.00236234$	$\beta=1$	$\sigma=0.000617881$	B=1.24051	$\sigma=0.000617881$
Surface gravity (m/s^2)	$\alpha \in$ [-6.74044, -6.08413]	$\mu \in$ [-6.76309, -5.90794]	$\mu \in$ [-Inf, Inf]	$\mu \in$ [0.000745872, 0.00392079]	$\lambda \in$ [2.90788e-59, 0.312293]	$\mu \in$ [0.00184503, 0.00328716]	$\sigma \in$ [0.0014004, 0.00314004]	c \in [0, Inf]	$\mu \in$ [0.00108386, 0.00218492]	A \in [0.00156068, 0.00413029]	$\mu \in$ [0.00156068, 0.00413029]
confidence interval	$\beta \in$ [0.210095, 0.542414]	$\sigma \in$ [0.476718, 1.14259]	$\omega \in$ [-Inf, Inf]	$\sigma \in$ [0.00176991, 0.00424212]	$\sigma \in$ [0.00242845, 0.00503667]	$\mu \in$ [-Inf, Inf]	$\sigma \in$ [-Inf, Inf]	$\mu \in$ [-Inf, Inf]	$\mu \in$ [0.58783, 4.20145]	B \in [0.848542, 1.81355]	$\sigma \in$ [0.58783, 4.20145]
Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic	
h	0	0	0	1	0	1	0	1	0	0	
p	0.1338	0.1812	0.0831	0.0447	0.1346	0.0246	0.0774	0.0432	0.2267	0.2248	
parameter	a=1.96	$\beta=0.00189402$	$\mu=0.00377557$	$\mu=0.00377557$	a=1.96818	k=3.67484	k=0.0172825	$\mu=0$	$\mu=0.00233333$	$\mu=0.00180765$	
confidence interval	b=837.502	$\gamma=0.695777$	$\sigma=0.00349733$	$\sigma=0.00349733$	b=0.00118553	$\mu=0.00101412$	$\mu=0.00101412$	$\sigma=0.00229286$	$\lambda=0.00430034$	$\sigma=0.000891925$	
Mass (kg)	a \in [0.573087, 6.70331]	$\beta \in$ [0.00119285, 0.0025952]	$\mu \in$ [0.00142262, 0.00589155]	$\mu \in$ [0.00165959, 0.00589155]	a \in [0.93686, 4.13482]	k \in [-Inf, 3.76664]	k \in [-0.45755, 0.492115]	$\mu=0$	$\mu \in$ [0.00136079, 0.00330588]	$\mu \in$ [0.00100912, 0.00260617]	
confidence interval	b \in [387.457, 1810.29]	$\gamma \in$ [0.417384, 0.974169]	$\sigma \in$ [0.00242845, 0.00503667]	$\sigma \in$ [0.00242845, 0.00503667]	$\mu \in$ [-Inf, 0.00101412]	$\sigma \in$ [-Inf, 6.50528e-05]	$\sigma \in$ [0.00109551, 0.00479883]	$\sigma=0.00551619$	$\lambda \in$ [0.000859365, 0.00774132]	$\sigma \in$ [0.000530064, 0.00150082]	
Logistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull		
h	0	0	1	1	1	1	1	0	0	0	
p	0.4831	0.3234	0.0429	0.0402	0.0011	0.0011	0.0129	0.2927	0.1637	0.1637	
parameter	$\alpha=-6.41229$	$\mu=-6.33551$	$\mu=0.500655$	$\mu=0.00233333$	$\lambda=0.00233333$	B=0.00236291	s=8.30018e-05	$\alpha=0.4$	$\mu=0.00163439$	A=0.0025389	$\mu=0.00163439$
confidence interval	$\beta=0.337578$	$\sigma=0.672955$	$\omega=1.11667e-05$	$\sigma=0.00249848$	$\lambda=0.00233333$	$\sigma=0.00236291$	$\sigma=0.00236234$	$\beta=1$	$\sigma=0.000617881$	B=1.24051	$\sigma=0.000617881$
Surface gravity (m/s^2)	$\alpha \in$ [-6.74044, -6.08413]	$\mu \in$ [-6.76309, -5.90794]	$\mu \in$ [-Inf, Inf]	$\mu \in$ [0.000745872, 0.00392079]	$\lambda \in$ [2.90788e-59, 0.312293]	$\mu \in$ [0.00184503, 0.00328716]	$\sigma \in$ [0.0014004, 0.00314004]	c \in [0, Inf]	$\mu \in$ [0.00108386, 0.00218492]	A \in [0.00156068, 0.00413029]	$\mu \in$ [0.00156068, 0.00413029]
confidence interval	$\beta \in$ [0.210095, 0.542414]	$\sigma \in$ [0.476718, 1.14259]	$\omega \in$ [-Inf, Inf]	$\sigma \in$ [0.00176991, 0.00424212]	$\sigma \in$ [0.00242845, 0.00503667]	$\mu \in$ [-Inf, Inf]	$\sigma \in$ [-Inf, Inf]	$\mu \in$ [-Inf, Inf]	$\mu \in$ [0.58783, 4.20145]	B \in [0.848542, 1.81355]	$\sigma \in$ [0.58783, 4.20145]

Table 4: Statistical inference results for the physical characteristics of the irregular moons in the Ananke group (Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0	1	0	0	0	0	1	0	0
p	0.1096	0.2456	0.0347	0.1193	0.1957	0.1195	0.0743	0.0268	0.3188	0.1615
parameter	a=1.20239 b=7.55126	$\beta=9.99437$ $\gamma=0.741697$	$\mu=21.6241$ $\sigma=22.0565$	$\mu=12.5833$	a=1.68839 b=7.45287	k=4.45809 $\sigma=0.946373$ $\mu=5.21215$	k=0.111756 $\theta=11.1381$	$\mu=0$ $\sigma=19.4915$	$\mu=12.5833$ $\lambda=20.1168$	$\mu=9.14784$ $\sigma=5.16788$
Escape velocity (km/h)	a∈[0.212431, 6.80574] b∈[3.4716, 16.4251]	$\beta \in [6.08085, 13.9079]$ $\gamma \in [0.444841, 1.03855]$	$\mu \in [8.27706, 34.9711]$ $\sigma \in [15.3317, 31.7309]$	$\mu \in [7.67197, 24.3526]$	a∈[0.809814, 3.52014] b∈[3.17255, 17.5081]	k∈[-Inf, 4.50003] $\sigma \in [-Inf, 0.936987]$ $\mu \in [-Inf, 5.22004]$	$\mu=0$ $\theta=0.373635$ c=0.597146 d=0.29936 e=13.977 f=32.1752	$\mu=0$ $\sigma=13.977$ $\lambda \in [4.0203, 36.2132]$	$\mu \in [6.95251, 18.2142]$ $\lambda \in [4.0203, 36.2132]$	$\mu \in [4.60605, 13.6896]$ $\sigma \in [3.03541, 8.79847]$
	Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull
h	0	0	0	0	1	1	1	1	0	0
p	0.7718	0.4982	0.0547	0.0515	0.0057	0.0004	0.0004	0.0113	0.5949	0.2478
parameter	$\mu=2.10984$ $\sigma=0.329425$	$\mu=2.20789$ $\sigma=0.701824$	$\mu=0.427203$ $\omega=379.917$	$\mu=12.5833$ $\sigma=15.5473$	$\lambda=12.5833$	s=0.398715 $\sigma=13.7803$	$\alpha=0.4$ $\beta=1$ c=0.0879956 $\mu=5.05427$	$\mu=8.0015$ $\sigma=2.5109$ $\nu=1.2787$	A=13.3413 B=1.13614	
Escape velocity (km/h)	$\mu \in [1.79575, 2.42393]$ $\sigma \in [0.202763, 0.535212]$	$\mu \in [1.76198, 2.65381]$ $\sigma \in [0.497169, 1.19161]$	$\mu \in [0.222775, 0.819223]$ $\omega \in [159.861, 902.887]$	$\mu \in [2.70503, 22.4616]$ $\sigma \in [11.0137, 26.3975]$	$\lambda \in [10.5763, 14.5904]$	s∈[0, 125.587] $\sigma \in [10.0892, 18.8219]$	$\alpha \in [0, 2]$ $\beta \in [-1, 1]$ c∈[0, Inf] $\mu \in [-Inf, Inf]$	$\mu \in [5.744, 10.259]$ $\sigma \in [1.24577, 5.06083]$ $\nu \in [0.496478, 3.29336]$	A∈[7.83931, 22.705] B∈[0.781032, 1.6527]	

Table 5: Statistical inference results for the physical characteristics of the irregular moons in the Carme group

	Beta	Birnbaum-Saunders	Burr	Exponential Value	Gamma	Extreme Value Pareto	Generalized Extreme Value Pareto	Half Normal	Inverse Gaussian	Logistic
h	1	1	1	1	1	1	1	1	0	1
p	0.0265	0.0338	0.0381	0.0048	0.0342	0.0165	0.0476	0	0.0752	0.0421
parameter	$a=0.9569$ $b=27.1731$	$\beta=2.34721$ $\gamma=0.947877$	null	$\mu=3.26923$	$a=1.04632$ $b=6.78053$ $c=3.12451$	$k=4.87879$ $\sigma=1.11279$ $\theta=0$	$k=0.336842$ $\sigma=2.04707$ $\theta=0$	$\mu=0$ $\sigma=6.58839$	$\mu=3.26923$ $\lambda=2.97988$	$\mu=1.91847$ $\sigma=1.72314$
Equatorial radius (km)	$a \in [0.1, 1.17155]$, $\beta \in [1.26244, 3.43198]$	$\mu \in [0.582495, 6.13989]$, $\gamma \in [1.0929, 6.5631]$		$\mu \in [1.69212, 11.9041]$, $a \in [0.530298, 2.06446]$	$a \in [0.21643, 12.4022]$, $b \in [1.3186, 7.40373]$	$k \in [-0.177605, 0.851288]$, $\sigma \in [-\text{Inf}, 1.07836]$, $\mu \in [-\text{Inf}, 1.25076]$, $\theta=0$	$k \in [0.177605, 0.851288]$, $\sigma \in [0.990762, 2.22956]$, $\theta=0$	$\mu \in [0.120114, 1.95544]$, $\sigma \in [0.214439, 5.78358]$, $\rho \in [0.923237, 0.923237]$, $\nu \in [0.455523, 1.26739]$, $\tau \in [1.20114, 2.63244]$	$\mu \in [1.40781, 5.130065]$, $\lambda \in [4.77628, 10.6142]$, $\nu \in [0.689065, 5.2707]$	$\mu \in [0.509492, 3.32744]$, $\sigma \in [1.01237, 2.93293]$
h	0	0	1	1	1	1	1	0	0	0
p	0.6654	0.2416	0.0043	0.0002	0	0	0.0108	0.5970	0.0772	0
parameter	$\mu=0.500116$ $\sigma=0.345753$	$\mu=0.635776$ $\sigma=0.825797$	$\mu=0.279182$ $\omega=43.4069$	$\mu=3.26923$ $\sigma=3.95362$	$\lambda=3.26923$ $B=4.6587$	$s=0.138269$ $\sigma=4.65791$	$\beta=0.99975$ $c=0.0345241$ $\mu=1.02132$	$\mu=1.57829$ $\sigma=0.44947$ $\nu=1.09505$	$A=3.01496$ $B=0.891756$	$\mu \in [0.1496, 1.57168]$, $\sigma \in [0.214439, 5.78358]$, $\rho \in [0.923237, 0.923237]$, $\nu \in [0.455523, 1.26739]$, $\tau \in [1.20114, 2.63244]$
Equatorial radius (km)	$\mu \in [0.191027, 0.809204]$, $\sigma \in [0.21508, 0.555817]$	$\mu \in [0.136752, 1.1348]$, $\omega \in [0.510509, 6.86697]$	$\mu \in [0.152676, 15.5151]$, $\omega \in [2.36111, 4.41127]$, $B \in [3.6688, 6.38443]$	$\mu \in [2.027752, 6.13989]$, $a \in [0.530298, 2.06446]$	$a \in [0.21643, 12.4022]$, $b \in [1.3186, 7.40373]$	$s \in [0, 32.0088]$, $\sigma \in [3.48539, 6.22488]$	$\beta \in [0, 2]$, $c \in [-1, 1]$, $\nu \in [-\text{Inf}, \text{Inf}]$, $\mu \in [-\text{Inf}, \text{Inf}]$	$\mu \in [1.20114, 1.95544]$, $\sigma \in [0.214439, 5.78358]$, $\rho \in [0.923237, 0.923237]$, $\nu \in [0.455523, 1.26739]$, $\tau \in [1.20114, 2.63244]$	$\mu \in [1.40781, 5.130065]$, $\lambda \in [4.77628, 10.6142]$, $\nu \in [0.689065, 5.2707]$	$\mu \in [0.509492, 3.32744]$, $\sigma \in [1.01237, 2.93293]$
h	1	1	1	1	1	1	1	1	0	1
p	0.0288	0.0331	0.0375	0.0047	0.0336	0.0415	0.0470	0	0.0736	0.0417
parameter	$a=0.991719$ $b=46.1684$	$\beta=14.7529$ $\gamma=0.947135$	$\mu=20.5385$	$\mu=42.7089$ $\sigma=55.1648$	$a=1.04701$ $b=19.0163$	$k=4.88017$ $\sigma=3.81319$ $\theta=0$	$k=0.336673$ $\sigma=12.8631$ $\theta=0$	$\mu=0$ $\sigma=4.13911$	$\mu=20.5385$ $\lambda=18.7554$	$\mu=12.0512$ $\sigma=10.8224$
Equatorial circumference (km)	$a \in [0.126644, 7.7659]$, $\beta \in [7.93896, 21.5667]$	$\mu \in [0.582039, 113.406]$, $\gamma \in [1.0929, 6.5631]$	$\mu \in [12.7376, 38.5729]$, $\sigma \in [39.0557, 77.9185]$	$\mu \in [10.6298, 2.06591]$, $a \in [0.530298, 2.06591]$, $b \in [8.27907, 46.4784]$	$a \in [0.21643, 12.4022]$, $b \in [1.3186, 7.40373]$	$k \in [4.83621, 4.92413]$, $\sigma \in [3.30406, 4.40077]$, $\mu \in [7.065, 7.09747]$	$k \in [-0.177535, 0.850881]$, $\sigma \in [6.22654, 26.5733]$, $\theta=0$	$\mu \in [0.120114, 1.95544]$, $\sigma \in [0.214439, 5.78358]$, $\rho \in [0.923237, 0.923237]$, $\nu \in [0.455523, 1.26739]$, $\tau \in [1.20114, 2.63244]$	$\mu \in [1.40781, 5.130065]$, $\lambda \in [4.77628, 10.6142]$, $\nu \in [0.689065, 5.2707]$	$\mu \in [3.20269, 20.8998]$, $\sigma \in [1.01237, 2.93293]$
h	0	0	1	1	1	1	1	0	0	0
p	0.6612	0.2381	0.0042	0.0039	0	0	0.3170	0.5943	0.0761	0
parameter	$\mu=2.33795$ $\sigma=0.349419$	$\mu=2.47393$ $\sigma=0.825062$	$\mu=0.279258$ $\omega=1713.22$	$\mu=20.5385$ $\sigma=37.4034$	$\lambda=20.5385$ $B=29.2679$	$s=0.848137$ $\sigma=29.2632$	$\beta=0.4$ $c=1.02179$ $\mu=6.92218$	$\mu=9.109$ $\sigma=2.7857$ $\nu=1.09465$	$A=18.944$ $B=0.891947$	$\mu \in [0.830426, 1]$, $\sigma \in [1.34413, 5.77335]$, $\nu \in [0.239439, 0.455847]$, $\tau \in [0.455847, 2.62866]$
Equatorial circumference (km)	$\mu \in [2.0297, 2.6462]$, $\sigma \in [0.214533, 0.55455]$	$\mu \in [1.97535, 2.97251]$, $\omega \in [0.510654, 6.1245]$	$\mu \in [0.152716, 15.5151]$, $\omega \in [2.36111, 4.41127]$, $B \in [3.6688, 6.38443]$	$\mu \in [2.027752, 6.13989]$, $a \in [0.530298, 2.06446]$	$a \in [0.21643, 12.4022]$, $b \in [1.3186, 7.40373]$	$s \in [0, 206.022]$, $\sigma \in [21.8964, 39.1086]$	$\beta \in [0, 0.830426]$, $c \in [1, 5.77335]$, $\mu \in [0.239439, 0.455847]$, $\tau \in [0.455847, 2.62866]$	$\mu \in [7.54607, 12.2757]$, $\sigma \in [1.34413, 5.77335]$, $\nu \in [0.239439, 0.455847]$, $\tau \in [0.455847, 2.62866]$	$\mu \in [1.40781, 5.130065]$, $\lambda \in [4.77628, 10.6142]$, $\nu \in [0.689065, 5.2707]$	$\mu \in [0.509492, 3.32744]$, $\sigma \in [1.01237, 2.93293]$

Table 6: Statistical inference results for the physical characteristics of the irregular moons in the Carme group (Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	1	1	1	1	1	1	0	1	0	1
p	0.0019	0.0005	0	0.0018	0.0022	0.0555	0.6454	0	0.5734	0.0047
parameter	a=0.146462 b=3.05772	$\beta=509.017$ $\gamma=7.60146$	null	$\mu=12336$ $\sigma=20918.7$	a=0.154481 b=25523.1	k=3.30047 $\mu=35.6981$ $\sigma=14.7472$	$\alpha=1.65981$ $\sigma=15.457$ $\theta=0$	$\mu=0$ $\sigma=14135.2$	$\mu=3942.85$ $\lambda=9.8063$	$\mu=678.945$ $\sigma=3918.55$
Volume (km^3)	$\mu \in [0.00367651, 1151.66]$ confidence interval	$\beta \in [-133.625, 1151.66]$ $\gamma \in [2.90409, 12.2988]$		$\mu \in [170.95, 24501]$ $\sigma \in [14814, 29539.1]$	a $\in [0.0864666, 0.275997]$ b $\in [5695.74, 114371]$	k $\in [3.09728, 3.50365]$ $\mu \in [24.304, 52.4339]$ $\sigma \in [14.0794, 15.415]$	k $\in [0.382183, 2.92945]$ $\alpha \in [5.39623, 44.2793]$ $\theta=0$	$\mu \in [0.0\sigma \in [10247.4, 22772.4]$	$\mu \in [-39036.6, 46922.3]$ $\lambda \in [2.26759, 17.345]$	$\mu \in [-2487.52, 3845.41]$ $\sigma \in [2275.38, 6748.33]$
Logistic	Lognormal	Lognormal Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull	
h	0	1	1	1	1	1	1	0	0	
p	0.6817	0.2494	0.0015	0.0006	0	0	0.0002	0.1722	0.0796	
parameter	$\mu=2.9226$ $\sigma=1.04959$	$\mu=0.0681327$ $\omega=1.99803e+08$	$\mu=3942.85$ $\sigma=14128.4$	$\lambda=3942.85$	B=9995.08	s=201.615 $\sigma=9994.31$	$\alpha=0.400179$ $\beta=1$ c=0.109849 $\nu=0.547009$	$\mu=13.2306$ $\sigma=9.22557$ $\nu=0.547009$	A=113.761 B=0.296615	
confidence interval	$\mu \in [1.98296, 4.83043]$ $\sigma \in [0.653374, 1.68606]$	$\mu \in [1.82107, 4.83043]$ $\omega \in [2.48976e+07, 1.60342e+09]$	$\mu \in [-4594.87, 12480.6]$ $\sigma \in [10131.3, 23322.3]$	$\lambda \in [3908.71, 3976.98]$	B $\in [7871.29, 13697.6]$	s $\in [0.135603, 13544.9]$	$\alpha \in [0, 2]$ $\beta \in [-1, 1]$ c $\in [0, \text{Inf}]$ $\mu \in [-\text{Inf}, \text{Inf}]$	$\mu \in [4.71713, 21.744]$ $\sigma \in [3.47137, 24.518]$ $\nu \in [0.263853, 1.13404]$	A $\in [16.0493, 806.359]$ B $\in [0.208655, 0.421655]$	
Volume (km^3)	Beta	Birnbaum-Saunders	Exponential Value	Poisson	Rayleigh	Rician	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	1	1	1	1	1	1	0	1	0	1
p	0.0026	0.0005	0	0.0020	0.0043	0.0242	0.2838	0	0.1090	0.0070
parameter	a=0.243223 b=3.13079	$\beta=194.597$ $\gamma=2.90131$	$\mu=545.468$	$\mu=1634.7$ $\sigma=2714.67$	a=0.279188 b=1953.77	$\mu=1.39587$ $\sigma=12.9609$	k=1.03331 $\sigma=35.316$ $\theta=0$	$\mu=0$ $\sigma=1844.2$	$\mu=545.468$ $\lambda=26.8121$	$\mu=122.034$ $\sigma=509.028$
Surface area (km^2)	$\mu \in [0.00774701, 7.63617]$ confidence interval	$\beta \in [13.5025, 375.692]$ $\gamma \in [1.54516, 13.5325]$	$\mu \in [338.289, 1024.43]$	$\mu \in [56.0167, 3213.39]$ $\sigma \in [1922.43, 3833.38]$	a $\in [0.152679, 0.51052]$ b $\in [592.737, 6439.96]$	k $\in [-\text{Inf}, 3.53197]$ $\sigma \in [-\text{Inf}, 1.22941]$ $\mu \in [-\text{Inf}, 12.9609]$	k $\in [0.150197, 1.91642]$ $\sigma \in [14.7704, 2971.09]$	$\mu=0$ $\sigma \in [1336.96, 2971.09]$	$\mu \in [791.942, 1882.88]$ $\lambda \in [6.2, 47.4243]$	$\mu \in [-289.399, 533.467]$ $\sigma \in [295.658, 876.382]$
Surface area (km^2)	Logistic	Lognormal Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull	
h	0	1	1	1	1	1	1	0	0	
p	0.6651	0.2416	0.0008	0.0008	0	0	0.0001	0.3233	0.0772	
parameter	$\mu=3.53128$ $\sigma=0.691438$	$\mu=0.10815$ $\omega=3.40108e+06$	$\mu=545.468$ $\sigma=1833.62$	$\lambda=545.468$	B=1304.05	s=46.9278 $\sigma=1303.72$	$\alpha=0.4$ $\beta=0.999996$ c=0.113584 $\nu=12.64$	$\mu=29.3221$ $\sigma=14.6958$ $\nu=0.742623$	A=114.232 B=0.445884	
confidence interval	$\mu \in [2.91317, 4.14939]$ $\sigma \in [0.430115, 1.11153]$	$\mu \in [2.80463, 4.80064]$ $\omega \in [1.18429, 2.72623]$	$\mu \in [-562.579, 1653.5]$ $\sigma \in [1314.86, 3026.83]$	$\lambda \in [532.772, 558.164]$	B $\in [1026.96, 1787.11]$	s $\in [0.6795, 12]$ $\sigma \in [978.376, 1737.26]$	$\alpha \in [0, 2]$ $\beta \in [-1, 1]$ c $\in [0, \text{Inf}]$ $\mu \in [-\text{Inf}, \text{Inf}]$	$\mu \in [15.9595, 42.6846]$ $\sigma \in [6.2184, 34.7303]$ $\nu \in [0.338196, 1.63068]$	A $\in [31.043, 420.35]$ B $\in [0.313731, 0.633705]$	

Table 7: Statistical inference results for the physical characteristics of the irregular moons in the Carme group (Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	1	1	1	1	1	1	1	1	1	1	1
p	0.0361	0.0089	0.0448	0.0050	0.0364	0	0.0088	0	0.0151	0	0.0172
parameter	a=1.08504 b=438.972	$\beta=0.00180585$ $\gamma=0.910952$	null	$\mu=0.000246154$	k=4.801163 $\sigma=8.00618e-05$ $\theta=0.000101667$	a=1.09276 b=0.0022526	$\mu=0.000976051$ $\theta=0$	k=0.32337 $\sigma=0.0015804$	$\mu=0$ $\sigma=0.00488325$	$\lambda=0.00246154$ $\sigma=0.00127836$	$\mu=0.00146493$ $\sigma=0.000127836$
Surface gravity (m/s^2)	a \in [0.108821, 0.8368] b \in [157.785, 1221.26]	$\beta\in$ [0.00097578, 0.00261413] $\gamma\in$ [0.559983, 1.26192]	$\mu\in$ [0.00152666, 0.00462297]	$\mu\in$ [0.00130009, 0.00882517] $\sigma\in$ [0.00458063, 0.0091395]	a \in [0.552415, 2.16163] b \in [0.00095535, 0.00531134]	$\mu\in$ [0.184528, 0.831267] $\sigma\in$ [0.000767051, 0.0052362]	$\mu\in$ [0.000354013, 0.00780715]	k \in [0.184528, 0.831267] $\sigma\in$ [0.000767051, 0.0052362]	$\mu=0$ $\sigma=0.000354013$ 0.00780715]	$\mu\in$ [0.00112383, 0.00379925] $\lambda\in$ [0.000569581, 0.00435693]	$\mu\in$ [0.000417075, 0.00251279] $\sigma\in$ [0.000752009, 0.00217311]
Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull		
h	0	1	1	1	1	1	1	1	1		
p	0.0584	0.0379	0.0045	0.0043	0	0	0.0002	0.0013	0.0383		
parameter	$\mu=-6.69388$ $\sigma=0.319434$	$\mu=-6.52986$ $\sigma=0.796449$	$\mu=0.287435$ $\omega=2.38462e-05$	$\mu=0.00246154$ $\sigma=0.000438967$	$\lambda=0.00246154$	a=0.000107992 $\sigma=0.00345233$	$\mu=0.000999957$ $\sigma=2.79913e-05$ $\nu=0.277657$	$\mu=0.000999957$ $\sigma=2.79913e-05$ $\nu=0.277657$	A=0.00230316 B=0.90802		
Surface gravity (m/s^2)	$\mu\in$ [-6.97911, -6.40864] $\sigma\in$ [0.197127, 0.517626]	$\mu\in$ [-7.01115, -6.04857] $\sigma\in$ [0.571123, 1.31473]	$\mu\in$ [-Inf, Inf] $\omega\in$ [-Inf, Inf]	$\mu\in$ [0.000191115, 0.00511419] $\lambda\in$ [3.8217e-52, 0.288911]	$\mu\in$ [0.00271928, 0.00473207]	$\mu\in$ [0.590319, 1] $\sigma\in$ [0.698362e-05] $\nu\in$ [-Inf, Inf]	$\mu\in$ [0.399877, 0.400193] $\beta\in$ [0.590319, 1] $\sigma\in$ [0.698362e-05] $\nu\in$ [-Inf, Inf]	$\mu\in$ [0.000999199, 0.00102928]	A \in [0.0012145, 0.00436769] B \in [0.639445, 1.2894]		
Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic	
h	1	1	1	1	1	1	0	1	0	0	
p	0.0018	0.0014	0	0.0018	0.0018	0.0010	0.4765	0	0.3564	0.0004	
parameter	a=0.156844 b=14.7524	$\beta=5.88842e+14$ $\gamma=5.71528$	$\mu=1.02059e+16$	$\mu=3.19245e+16$ $\sigma=5.41302e+16$	a=0.15867 b=6.43219e+16	k=4.26885 $\mu=4.82678e+14$ $\sigma=1.27878e+14$	k=1.54875 $\sigma=4.88441e+13$ $\theta=0$	$\mu=0$ $\sigma=3.65778e+16$	$\mu=1.02059e+16$ $\lambda=3.40873e+13$	$\mu=1.02059e+16$ $\sigma=2.01563e+16$	
Mass (kg)	a \in [0.00278132, 9.48573e+14] confidence 8.84477 interval b \in [1.08415, 200.741]	$\mu\in$ [2.29111e+14, 9.48573e+14] $\gamma\in$ [3.51844, 7.91212]	$\mu\in$ [6.32954e+15, 1.91676e+16]	$\mu\in$ [4.45582e+14, 6.34033e+16] $\sigma\in$ [3.83333e+16, 7.64369e+16]	a \in [0.0887342, 0.283725] b \in [1.45942e+16, 4.79589e+14]	k \in [-Inf, 4.31276] $\mu\in$ [-Inf, 2.73162] $\sigma\in$ [1.809606e+13, 1.31834e+14]	$\mu\in$ [0.365888, 2.73162] $\sigma\in$ [1.809606e+13, 1.31834e+14] $\theta=0$	$\mu=0$ $\sigma\in$ [2.65172e+16, 5.89284e+16]	$\mu\in$ [8.58123e+16, 1.06224e+17] $\lambda\in$ [7.88231e+12, 6.02923e+13]	$\mu\in$ [-Inf, Inf] $\sigma\in$ [-Inf, Inf]	
Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull		
h	0	0	1	1	1	1	1	0	0		
p	0.5776	0.1999	0.0012	0.0006	0	0	0.0001	0.2517	0.0645		
parameter	$\mu=31.6362$ $\sigma=0.956765$	$\mu=0.06965502$ $\omega=1.33794e+33$	$\mu=1.02059e+16$ $\sigma=3.65594e+16$	$\lambda=1.02059e+16$	a=2455.22 b=2.58644e+16	$\mu=1.31493e+07$	$\beta=0.91118$ $\sigma=2.82241e+11$ $\mu=1.5147e+13$	$\mu=4.27352e+13$ $\sigma=2.2678e+13$ $\nu=0.544181$	A=3.27447e+14 B=0.303268		
Mass (kg)	$\mu\in$ [30.7891, 39.4892] confidence 39.4892 interval b \in [0.59232, 1.35455]	$\mu\in$ [0.0397293, 0.122105] $\omega\in$ [1.70373e+32, 1.04945e+34]	$\mu\in$ [-1.18867e+16, 22986e+16] $\sigma\in$ [2.621629e+16, 6.03499e+16]	$\mu\in$ [1.02059e+16, 1.02059e+16]	$\mu\in$ [2.03857e+16, 2.455.25] 3.54454e+16]	$\mu\in$ [2.455.2, 2.455.25] $\beta\in$ [1, 1] $\sigma\in$ [1.31493e+07, 1.31493e+07]	$\mu\in$ [0.2, 2] $\sigma\in$ [1, 1] $\mu\in$ [-Inf, Inf]	$\mu\in$ [2.38036e+13, 6.16668e+13] $\sigma\in$ [7.48881e+12, 6.86745e+13]	A \in [4.81906e+13, 2.292453e+15] B \in [0.213668, 0.430044] 1.17314]		

Table 8: Statistical inference results for the physical characteristics of the irregular moons in the Carme group (Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	1	1	1	1	1	0	1	1	1	1
p	0.0185	0.0178	0.0270	0.0042	0.0204	0.1558	0.0275	0	0.0396	0.0331
parameter	a=1.06577 b=71.491	$\beta=10.6438$ $\gamma=0.904042$	$\mu=14.4615$	$\mu=29.7535$ $\sigma=38.0633$	a=1.10754 b=13.0574	k=4.69665 $\sigma=0.81447$ $\mu=5.17331$	k=0.317357 $\sigma=9.3581$ $\theta=0$	$\mu=0$ $\sigma=28.6866$	$\mu=14.4615$ $\omega\lambda=14.7298$	$\mu=8.58721$ $\sigma=7.39779$
Escape velocity (km/h)	a \in [0.101294, 11.2135] confidence interval	$\beta\in$ [5.90697, 15.3806] $\gamma\in$ [0.555677, 1.25241]	$\mu\in$ [8.96879, 27.16]	$\mu\in$ [7.61894, 51.888] $\sigma\in$ [26.9496, 53.76]	a \in [0.559447, 2.1926] b \in [5.54596, 30.7422]	k \in [0.183543, 0.818258] k \in [-Inf, 4.71535] $\sigma\in$ [4.56066, 19.202]	$\sigma\in$ [0.20, 46.2154]	$\mu\in$ [6.67222, 22.2509] $\lambda\in$ [3.4061, 6.0535]	$\mu\in$ [2.55264, 14.6218] $\sigma\in$ [4.33641, 12.6204]	
	Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull
h	0	0	1	1	1	1	1	1	0	0
p	0.5222	0.1490	0.0027	0.0031	0	0	0	0.0129	0.5996	0.0502
parameter	$\mu=2.01252$ $\sigma=0.30989$	$\mu=2.15635$ $\sigma=0.788258$	$\mu=0.289047$ $\omega=822.923$	$\mu=14.4615$ $\sigma=25.7864$	$\lambda=14.4615$	B=20.2845	s=0.535068 $\sigma=20.2818$	$\alpha=0.4$ $\beta=1$ c=0.149081 $\mu=5.09212$	$\mu=7.08058$ $\sigma=1.51796$ $\nu=0.993412$	A=13.5801 B=0.91243
Escape velocity (km/h)	$\mu\in$ [1.73925, 2.2858] $\sigma\in$ [0.191438, 0.501634]	$\mu\in$ [1.68001, 2.63269] $\sigma\in$ [0.565249, 1.30121]	$\mu\in$ [0.157813, 0.529415] $\omega\in$ [299.396, 2261.89]	$\mu\in$ [-1.121, 30.0441] $\sigma\in$ [18.494, 42.5664]	$\lambda\in$ [2.3943, 16.5287]	B \in [15.9744, 27.7985]	s \in [0, 156.072] $\sigma\in$ [15.1779, 27.1021]	$\alpha\in$ [0, 2] $\beta\in$ [-1, 1] c \in [0, Inf] $\mu\in$ [-Inf, Inf]	$\mu\in$ [5.84963, 8.31154] $\sigma\in$ [0.660915, 3.4864] $\nu\in$ [0.403482, 2.44588]	A \in [7.1831, 25.6741] B \in [0.643176, 1.2944]

Table 9: Statistical inference results for the physical characteristics of the irregular moons in the Pasiphae group

	Beta	Birnbaum-Saunders	Burr	Exponential Value	Gamma	Extreme Value	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0	0	0	0	1	1	0	1	0	0
p	0.1747	0.1921	0.1921	0.0807	0.1962	0.0482	0.0256	0.3149	0.0020	0.3709	0.1214
parameter	a=0.693246 b=10.4611	$\beta=3.5345$ $\gamma=1.27773$	null	$\mu=11.2169$ $\mu=6$	a=0.754951 b=7.94754	$\mu=11.6913$	k=0.37015 $\sigma=0.0251484$ $\mu=1.00575$	$k=0.590561$ $\sigma=2.82087$ $\theta=0$	$\mu=0$ $\sigma=10.8807$	$\lambda=2.62599$	$\mu=3.72437$ $\mu=4.12539$
Equatorial radius (km)		$\beta \in [1.3445, 5.7245]$ 5.91662] b $\in [2.38592, 45.867]$		$\mu \in [3.58884, 12.0193]$	1.54662]	$\mu \in [3.83697, 18.5968]$ $\sigma \in [7.83179, 17.4528]$	k $\in [0.368513, 1.4136]$ k $\in [Inf., 4.40573]$ $\sigma \in [Inf., 0.02439548]$ 7.30285]	k $\in [0.232479, 1.4136]$ $\sigma \in [7.70782, 18.4741]$	$\mu \in [0.640405, 11.3596]$ $\sigma \in [0.431368, 4.82062]$	$\mu \in [0.286215, 7.73495]$	
Logistic											
h	0	0	0	1	1	1	1	1	0	0	0
p	0.6575	0.4794	0.1118	0.0521	0	0	0	0.0089	0.2521	0.3481	0
parameter	$\mu=0.802683$ $\sigma=0.59951$	$\mu=0.999521$ $\sigma=1.16843$	$\mu=0.255129$ $\omega=118.389$	$\mu=6$ $\sigma=9.51987$	B=7.6938	$\lambda=6$	s=0.333655 $\sigma=7.69098$	$\epsilon=0.4$ $\beta=0.781449$ $c=0.0455176$ $\mu=1.02259$	$\mu=1.50481$ $\sigma=0.544352$ $\nu=0.640526$	A=5.01187 B=0.78262	0
Equatorial radius (km)		$\mu \in [0.193211, 1.78448]$ $\sigma \in [0.8164, 2.05051]$	$\mu \in [0.132968, 0.48952]$ $\omega \in [36.7454, 381.435]$	$\mu \in [0.395538, 12.3955]$ $\sigma \in [6.6517, 16.7087]$	B $\in [4.6404, 7.63347]$	$\lambda \in [4.6404, 10.8894]$	s $\in [0, 59.14]$ $\sigma \in [5.48248, 10.7891]$	$\alpha \in [0.399851, 0.400149]$ $\beta \in [0.434779, 1]$ $\sigma \in [0.198852, 11.2121]$ 1.59288]	$\mu \in [0.96102, 2.0486]$ A $\in [2.24033, 11.2121]$ B $\in [0.514161, 1.19125]$ 1.48094]	A $\in [2.24033, 11.2121]$ B $\in [0.514161, 1.19125]$	0
Beta											
h	0	0	0	1	0	1	1	0	1	0	0
p	0.1839	0.1932	0	0.0815	0.1972	0.0481	0.0087	0.3135	0.0020	0.3732	0.1213
parameter	a=0.717723 b=17.9304	$\beta=22.2236$ $\gamma=1.277$	null	$\mu=37.7091$	a=0.75547 b=49.9147	$\mu=70.4875$ $\sigma=73.4572$	k=2.94711 $\sigma=2.244982$ $\mu=6.38145$	k=0.589995 $\sigma=17.7441$ $\theta=0$	$\mu=0$ $\sigma=68.3706$	$\mu=37.7091$ $\lambda=16.5284$	$\mu=23.4105$ $\sigma=25.9204$
Equatorial circumference (km)		$\beta \in [8.45882, 35.9884]$ $\gamma \in [0.740293, 1.8137]$		$\mu \in [23.5553, 75.5396]$	$\mu \in [24.1191, 116.8561]$ $\mu \in [22.5553, 75.5396]$	$\mu \in [24.1191, 116.8561]$ $\mu \in [18.5793, 109.658]$	k $\in [Inf., 3.75404]$ $\sigma \in [Inf., 0.0893077]$ $\mu \in [6.85487, 45.9312]$	k $\in [0.232755, 1.41274]$ k $\in [Inf., 3.75404]$	$\mu=0$ $\sigma=68.3706$	$\mu \in [4.04978, 71.3684]$ $\lambda \in [48.4334, 116.085]$ 30.3417]	$\mu \in [1.78849, 48.6095]$ $\sigma \in [14.7931, 45.4176]$
Logistic											
h	0	0	0	1	1	1	1	0	0	0	0
p	0.6553	0.4823	0.1123	0.0519	0	0	0	0.2005	0.2143	0.3495	0
parameter	$\mu=2.64143$ $\sigma=0.599202$	$\mu=0.255256$ $\sigma=1.16788$	$\mu=0.255256$ $\omega=4674.54$	$\mu=37.7091$ $\sigma=59.8149$	B=48.3453	$\lambda=37.7091$	s=2.09627 $\sigma=48.3276$	$\alpha=0.4$ $\beta=0.848024$ $\mu=6.81427$	$\mu=9.41651$ $\sigma=3.41646$ $\nu=0.639772$	A=31.5102 B=0.782915	0
Equatorial circumference (km)		$\mu \in [2.03226, 3.2506]$ $\sigma \in [0.816015, 2.04954]$	$\mu \in [0.133032, 0.489776]$ $\omega \in [1451.3, 15056.4]$	$\mu \in [2.47509, 77.8933]$ $\sigma \in [41.7937, 104.971]$	B $\in [37.39, 68.4256]$	$\lambda \in [34.0802, 41.338]$	s $\in [0, 370.659]$ $\sigma \in [34.4577, 67.7806]$	$\alpha \in [0.399851, 0.400149]$ $\beta \in [0.871125, 1]$ $c \in [0, 2.05294]$ $\mu \in [5.99492, 7.63362]$	A $\in [1.4.0894, 12.8465]$ A $\in [1.20837, 70.4766]$ B $\in [0.514361, 1.19169]$ 1.48209]	A $\in [1.4.0894, 12.8465]$ B $\in [0.514361, 1.19169]$	0

Table 10: Statistical inference results for the physical characteristics of the irregular moons in the Pasiphae group (Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0.0913	0.1014	1	1	0	0.3342	0.8840	1	0	1
p	0.0913	$\beta=684.187$	0.1014	0	0.0267	0.0933	$k=5.09945$	$k=2.99649$	0	0.8028	0.0347
parameter	$a=0.150787$	$\beta=684.187$	$\gamma=8.77815$	$\mu=12941$	$\mu=32548.3$	$a=0.151929$	$\sigma=16.9397$	$\sigma=17.5719$	$\mu=0$	$\mu=12941$	$\mu=4877.79$
confidence interval	$b=11.4976$	$\gamma=8.77815$	null		$\sigma=46855.5$	$b=85177.7$	$k=7.32154$	$\theta=0$	$\sigma=35183.3$	$\lambda=11.3863$	$\sigma=12231$
Volume (km^3)	$a \in [0.0204683, 1.11083]$	$\beta \in [-24.8356, 1393.21]$		$\mu \in [77.40.52, 25923.7]$	$\mu \in [2939.89, 62156.8]$	$a \in [0.0808925, 0.285348]$	$\sigma \in [4.90962, 5.28929]$	$k \in [0.797871, 5.19512]$	$\mu \in [0.797871, 5.19512]$	$\mu \in [-244889, 270765]$	$\mu \in [6527.81, 16283.4]$
	$b \in [0.912358, 144.893]$	$\gamma \in [4.37623, 13.1801]$		$\sigma \in [31887.9, 68848.6]$	$a \in [16491, 3.439944]$	$b \in [1.6491, 3.439944]$	$\mu \in [7.02766, 7.61542]$	$\theta=0$	$\sigma \in [24923.7, 59737]$	$\lambda \in [1.87041, 20.9022]$	$\sigma \in [6972.91, 21453.9]$
h	0	0.6707	0.4967	1	1	0	0	1	1	0	0
p	0.6707	0.4967	0.0742	0.0115	1	0	0	0.0057	0	0.3502	0
parameter	$\mu=3.83231$	$\mu=4.41876$	$\mu=0.069973$	$\mu=12941$	$\lambda=12941$	$B=24878.4$	$s=2753.42$	$\beta=0.997741$	$\mu=4$	$A=523.545$	$A=523.545$
confidence interval	$\sigma=1.80777$	$\sigma=3.5174$	$\omega=1.23787e+09$	$\sigma=34313.8$			$\sigma=24804.9$	$c=0.516292$	$\sigma=1.16275e-06$	$B=0.260358$	$B=0.260358$
Volume (km^3)	$\mu \in [1.98393, 5.67069]$	$\mu \in [2.05573, 6.78178]$	$\mu \in [0.0380054, 0.128831]$	$\mu \in [-10111.3, 35993.3]$	$\lambda \in [12873.8, 13008.2]$	$B \in [19240.8, 35211.6]$	$s \in [0.58525.5, 1.8047.8, 34091.9]$	$\alpha \in [0.399851, 0.400149]$	$\mu \in [-Inf, Inf]$	$A \in [46.5422, 5889.26]$	$A \in [46.5422, 5889.26]$
	$\sigma \in [1.08025, 3.02526]$	$\sigma \in [2.45767, 6.17281]$	$\omega \in [1.32573e+08, 1.15582e+10]$	$\sigma \in [23975.6, 60218.4]$				$\mu=4.31831$	$\mu \in [-Inf, Inf]$	$B \in [0.17102, 0.396364]$	$B \in [0.17102, 0.396364]$
								$\alpha \in [0.399851, 0.400149]$			
								$\beta \in [0.950668, 1]$			
								$\mu \in [0.454819, 0.577766]$			
								$\mu \in [1.25675, 4.37987]$			
h	0	0.0755	0	1	1	0	0	0	1	0	1
p	0.1101	0.0755	0	0	0.0250	0.1118	0.0051	0.6885	0	0.7373	0.0488
parameter	$a=0.252008$	$\beta=314.801$	$\gamma=3.62818$	$\mu=1487.72$	$\mu=3468.28$	$a=0.255134$	$\sigma=0.84281$	$k=1.85127$	$\mu=0$	$\mu=1487.72$	$\mu=646.652$
confidence interval	$b=16.52$	$\gamma=3.62818$	null		$\sigma=4635.52$	$b=5831.14$	$\mu=12.8441$	$\theta=0$	$\sigma=3674.96$	$\lambda=30.7839$	$\sigma=1384.18$
Surface area (km^2)	$a \in [0.0299409, 1.2111]$	$\beta \in [17.0737, 612.529]$	$\gamma \in [1.96917, 5.31719]$	$\mu \in [889.865, 2980.23]$	$\mu \in [540.258, 6396.31]$	$a \in [0.132971, 0.489531]$	$k \in [-Inf, 3.91528]$	$k \in [0.348416, 3.35412]$	$\mu \in [0.348416, 3.35412]$	$\mu \in [-4624.14, 7509.58]$	$\mu \in [-673.055, 1966.36]$
	$b \in [2.15329, 126.742]$	$\gamma \in [1.96917, 5.31719]$		$\sigma \in [1340.19, 6842.93]$	$\sigma \in [1340.19, 6842.93]$	$b \in [1928.09, 22251.5]$	$\mu \in [-Inf, 12.8441]$	$\sigma \in [13.662, 146.976]$	$\mu \in [0.0, 2603.33]$	$\lambda \in [5.05682, 56.511]$	$\sigma \in [789.072, 2428.11]$
								$\theta=0$			
h	0	0.6573	0.4794	1	1	1	1	0	1	0	0
p	0.6573	0.4794	0.0810	0.0127	0	0	0	0.5195	0	0.3481	0
parameter	$\mu=4.13644$	$\mu=4.53013$	$\mu=0.109138$	$\mu=1487.72$	$\lambda=1487.72$	$B=2598.59$	$s=0.5.893$	$\alpha=0.4$	$\mu=25.1433$	$A=315.666$	$A=315.666$
confidence interval	$\sigma=1.19897$	$\sigma=2.33679$	$\omega=1.35054e+07$	$\sigma=3524.38$			$\sigma=2597.91$	$c=17.728$	$\sigma=14.9944$	$B=0.391316$	$B=0.391316$
Surface area (km^2)	$\mu \in [2.91754, 6.35533]$	$\mu \in [2.96026, 6.10001]$	$\mu \in [0.0586948, 0.202931]$	$\mu \in [-879.988, 3855.43]$	$\lambda \in [1464.93, 1510.52]$	$B \in [2009.74, 3677.92]$	$s \in [0.19168.1, 3594.8]$	$\mu \in [8.7758, 41.5108]$	$\sigma \in [4.59548, 48.9243]$	$A \in [63.0757, 1579.77]$	$A \in [63.0757, 1579.77]$
	$\sigma \in [0.716052, 2.00759]$	$\sigma \in [1.63276, 4.10091]$	$\omega \in [2.25755e+06, 8.07932e+07]$	$\sigma \in [2462.54, 6185.05]$				$\mu \in [0.19424, 0.853501]$	$\mu \in [0.19424, 0.853501]$	$B \in [0.257085, 0.595634]$	$B \in [0.257085, 0.595634]$

Table 11: Statistical inference results for the physical characteristics of the irregular moons in the Pasiphae group
(Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0	0	0	1	0	1	0	1	0	0
p	0.1230	0.1159	0.0721	0.0386	0.1309	0.0064	0.0064	0.1891	0.0021	0.2423	0.1088
parameter	$a=0.832578$ $b=1.81.95$	$\gamma=0.00283055$ $\gamma=1.18081$	null	$\mu=0.00454545$	$a=0.837642$ $b=0.00850214$	$k=3.07641$ $\sigma=5.54369e-07$ $\theta=0$	$k=3.07641$ $\sigma=5.54369e-07$ $\theta=0$	$k=0.443994$ $\beta=0.167299$ $c=3.29805e-05$ $\nu=0.00100396$	$\mu=0$ $\sigma=0.00242878$ $\sigma=0.00801136$	$\mu=0.00454545$ $\lambda=0.00242814$	$\mu=0.00283055$ $\sigma=0.0029916$ $\sigma=0.0029916$
Surface gravity (m/s^2)	$a \in [0.0938242, 0.00116649]$ confidence 7.38813] interval $b \in [88.1741, 867.233]$	$\beta \in [0.0044946]$ $\gamma \in [0.685367, 1.67625]$	null	$\mu \in [0.00271882, 0.00910554]$	$a \in [0.0029713, 0.013705]$ $b \in [0.00205667, 0.0126912]$	$a \in [0.406037, 1.72803]$ $\sigma \in [0.000956313, 5.14356e-07]$ $\theta \in [0.00616845, 0.0143177]$ $\theta=0$	$k \in [-Inf, 3.45866]$ $\sigma \in [-Inf, 0.000956313]$ $\theta \in [0.00616845, 0.0143177]$ $\theta=0$	$k \in [-0.275237, 1.28491]$ $\sigma \in [0.000956313, 0.00616845]$ $\theta=0$	$\mu=0$ $\sigma \in [0.00567521, 0.0136023]$	$\mu \in [-1.98637e-05, 0.00822067]$ $\lambda \in [0.00039858, 0.00445742]$	$\mu \in [-1.98637e-05, 0.0029916]$ $\sigma \in [0.00170554, 0.00524741]$
	Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location- Scale	Weibull	
h	0	0	0	1	1	1	1	1	1	0	0
p	0.4431	0.3373	0.0752	0.0372	0	0	0	0.0153	0.0046	0.2372	0
parameter	$\alpha=6.2984$ $\beta=0.555284$	$\mu=6.09792$ $\sigma=1.09331$	$\mu=0.275116$ $\omega=6.41818e-05$	$\mu=0.00454545$ $\sigma=0.00691901$	$\lambda=0.00454545$	$B=0.00566488$	$s=0.000219126$ $\sigma=0.00566323$	$\alpha=0.443994$ $\beta=0.167299$ $c=3.29805e-05$ $\nu=0.00100396$ $\mu \in [0.123181, 0.769408]$ $\beta \in [-0.232408, 0.567006]$ $c \in [0, 0.000102931]$ $\nu \in [-Inf, Inf]$ $\mu \in [0.000970799, 0.00103711]$	$\mu=0.001$ $\sigma=1.00299e-06$ $\nu=0.149747$	$A=0.00390547$ $B=0.828192$	$A \in [0.00186662, 0.00855225]$ $\sigma \in [-Inf, Inf]$ $B \in [0.544905, 1.25876]$
Surface gravity (m/s^2)	$\alpha \in [6.85117, 0.0052e+15]$ confidence -5.72564] interval $\beta \in [0.331098, 0.931266]$	$\mu \in [6.83242, -5.36342]$ $\sigma \in [0.763917, 1.91869]$	$\mu \in [-Inf, Inf]$ $\omega \in [-Inf, Inf]$	$\mu \in [-0.00102801, 0.00919371]$ $\sigma \in [0.00483443, 0.0121424]$	$\lambda \in [4.83242e-34, 0.344839]$	$B \in [0.00438119, 0.0080178]$	$s \in [0, Inf]$ $\sigma \in [2.22507e-308, Inf]$	$\alpha \in [0, 0.000102931]$ $\nu \in [-Inf, Inf]$ $\mu \in [0.000970799, 0.00103711]$	$\mu \in [-Inf, Inf]$ $\sigma \in [-Inf, Inf]$ $\nu \in [-Inf, Inf]$	$A \in [0.00186662, 0.00855225]$ $\sigma \in [-Inf, Inf]$ $B \in [0.544905, 1.25876]$	$A \in [0.00186662, 0.00855225]$ $\sigma \in [-Inf, Inf]$ $B \in [0.544905, 1.25876]$
	Beta	Birnbaum-Saunders	Burr	Exponential	Extreme Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0	0	1	1	0	0	0	1	0	1
p	0.0772	0.1346	0.0654	0.0268	0.0268	0.0822	0.1438	0.7503	0	0.8481	0.0077
parameter	$a=0.151828$ $b=4.23735$	$\beta=1.17403e+15$ $\gamma=7.4993$	null	$\mu=3.41874e+16$	$\mu=8.61414e+16$ $\sigma=1.2421e+17$	$a=0.155319$ $b=2.2011e+17$	$k=3.98208$ $\sigma=5.65164e+14$ $\theta=1.56627e+14$	$k=2.83558$ $\sigma=9.90544e+13$ $\theta=0$	$\mu=0$ $\sigma=9.31549e+16$	$\mu=3.41874e+16$ $\lambda=4.03647e+13$ $\sigma=5.01071e+16$	$\mu=3.41874e+16$ $\sigma=5.01071e+16$
Mass (kg)	$a \in [0.019599, 1.17617]$ confidence 1.17617] interval $b \in [0.415137, 43.251]$	$\beta \in [0.47536e+14, 2.00052e+15]$ $\gamma \in [4.36656, 10.6333]$	$\mu \in [0.0387087, 0.131306]$ $\omega \in [9.48929e+32, 7.93576e+34]$	$\mu \in [2.04488e+16, 6.81848e+16]$	$\mu \in [7.05104e+15, 1.64652e+17]$ $\sigma \in [8.45403e+16, 1.82495e+17]$	$a \in [0.0826343, 0.291938]$ $b \in [4.32619e+16, 1.11989e+18]$	$k \in [-Inf, 4.11254]$ $\sigma \in [-Inf, 5.4542e+14]$ $\theta \in [-Inf, 1.7133e+14]$	$k \in [0.755062, 4.9161]$ $\sigma \in [1.50449e+13, 2.31802e+14]$ $\theta=0$	$\mu=0$ $\sigma \in [6.59905e+16, 1.58166e+17]$	$\mu \in [-5.53893e+17, 6.22288e+17]$ $\lambda \in [6.63069e+12, 7.40988e+13]$	$\mu \in [-3.31529e+16, 0.1527e+17]$ $\sigma \in [1.65192e+16, 1.51989e+17]$
	Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location- Scale	Weibull	
h	0	0	0	1	1	1	1	1	1	0	0
p	0.5969	0.4095	0.0654	0.0116	0	0	0	0.0041	0	0.2969	0
parameter	$\mu=32.5401$ $\sigma=1.72655$	$\mu=33.1474$ $\sigma=3.40738$	$\mu=0.0712929$ $\omega=8.67783e+33$	$\mu=3.41874e+16$ $\sigma=0.08843e+16$	$\lambda=3.41874e+16$	$B=6.58704e+16$	$s=2455.22$ $\sigma=2.04079e+07$	$\alpha=0.4$ $\beta=1$ $\mu=3.98955e+14$ $\theta=3.29862e+14$	$\mu=1.49867e+13$ $\sigma=1.72104e+08$ $\nu=0.293945$	$A=1.49497e+15$ $B=0.256824$	$A=1.49497e+15$ $B=0.256824$
Mass (kg)	$\mu \in [30.7905, 34.2896]$ confidence 34.2896] interval $\sigma \in [1.02681, 2.90314]$	$\mu \in [30.8583, 35.4365]$ $\sigma \in [2.38079, 5.97972]$	$\mu \in [0.0387087, 0.131306]$ $\omega \in [9.48929e+32, 7.93576e+34]$	$\mu \in [2.04488e+16, 6.81848e+16]$	$\lambda \in [3.41874e+16, 3.41874e+16]$	$B \in [5.09439e+16, 9.32298e+16]$	$s \in [2455.22, 2.0455.22]$ $\sigma \in [2.04079e+07, 2.04079e+07]$	$\alpha \in [0, 2]$ $\beta \in [-1, 1]$ $c \in [0, Inf]$ $\mu \in [-Inf, Inf]$	$\mu \in [-Inf, Inf]$ $\sigma \in [-Inf, Inf]$ $\nu \in [-Inf, Inf]$	$A \in [1.396e+14, 1.60095e+16]$ $B \in [0.174862, 0.40412]$	$A \in [1.396e+14, 1.60095e+16]$ $B \in [0.174862, 0.40412]$

Table 12: Statistical inference results for the physical characteristics of the irregular moons in the Pasiphae group (Cont'd)

	Beta	Birnbaum-Saunders	Burr	Exponential Value	Gamma	Generalized Extreme Value	Generalized Pareto	Half Normal	Inverse Gaussian	Logistic
h	0	0		1	0	1	0	1	0	0
p	0.1646	0.1593		0.0474	0.1724	0.0007	0.2576	0.0022	0.3001	0.1166
parameter	a=0.765831 b=27.6922	$\beta=16.1501$ $\gamma=1.22428$	null	$\mu=49.2372$ $\sigma=50.8705$	a=0.794075 b=33.4294	k=3.22086 $\sigma=0.0239319$ $\mu=5.00732$	k=0.550514 $\sigma=13.2449$ $\theta=0$	$\mu=0$ $\sigma=47.5681$	$\mu=26.5455$ $\lambda=12.9534$	$\mu=16.6346$ $\sigma=17.9197$
Escape velocity (km/h)	a=[0.0820019, confidence 7.15223] b=[5.74746, 133.426]	$\beta=[6.41832,$ 25.8819] $\gamma=[0.710052,$ 1.7385]		$\mu=[17.126,$ 81.3485] $\sigma=[34.0801,$ 75.9331]	a=[0.386298, 1.6323] b=[12.5554, 89.0079]	k=[-Inf, 3.51371] $\sigma=[-Inf, 0.0222439]$ $\mu=[-Inf, 5.00968]$	k=[-0.249229, 1.35026] $\sigma=[5.17553,$ 33.8953] $\theta=0$	$\mu=0$ $\sigma=[83.697,$ 80.7649]	$\mu=[4.08877,$ 49.0021] $\lambda=[2.12783,$ 23.7789]	$\mu=[-0.781907,$ 34.051] $\sigma=[10.2237,$ 31.409]
	Loglogistic	Lognormal	Nakagami	Gaussian	Poisson	Rayleigh	Rician	Stable	t Location-Scale	Weibull
h	0	0	0	0	1	1	1	1	0	0
p	0.5832	0.4141	0.0995	0.0507	0	0	0	0.0506	0.2427	0.3077
parameter	$\mu=2.32956$ $\sigma=0.570971$	$\mu=2.53072$ $\sigma=1.12639$	$\mu=0.264342$ $\omega=2.262.73$	$\mu=26.5455$ $\sigma=41.3989$	$\lambda=26.5455$	B=33.6357	s=1.31382 $\sigma=33.6258$	$\alpha=0.42408$ $\beta=0.975185$ c=0.321495 $\nu=5.20005$	$\mu=6.98428$ $\sigma=2.15081$ $\nu=0.622135$	A=23.7296 B=0.804105
Escape velocity (km/h)	$\mu=[1.75079,$ confidence 2.90834] $\sigma=[0.339631,$ 0.959888]	$\mu=[1.774,$ 3.28744] $\sigma=[0.787028,$ 1.97674]	$\mu=[0.137532,$ 0.508078] $\omega=[716.898,$ 7141.79]	$\mu=[-1.26674,$ 54.3576] $\sigma=[28.9261,$ 72.6524]	$\lambda=[23.5007,$ 29.5902]	B=[26.0137, 47.6064]	s=[0.289.799] $\sigma=[23.9479,$ 47.2146]	$\alpha=[0.2,$ $\beta=[-1, 1]$ c=[0. Inf] $\nu=[0.270941,$ 1.42854]	$\mu=[4.84509,$ 9.12346] $\sigma=[0.756997,$ 6.11098] $\nu=[0.270941,$ 1.22251]	A=[10.3794, 49.7748] B=[0.528902, 1.22251]