Denmark_M_1890_post.csv_run_18_20250529_151659

May 29, 2025

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/Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3
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Loading file from: /Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3/ba
ysian02/posterior_csvs_baysian01/HUMANS/Denmark_M_1890_post.csv
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Reading Humans_M
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1 # 1. Density coner plot

A sample is 1 parameter set scanned. For the corner plot below, the quantiles (represented by the solid lines) are 0.16,0.5,0.84 of the samples. Dots represent individual samples (outside the line surrounding 0.84 of the samples) The parameter search is performed in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c but we also show the regular parameters

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(25,)
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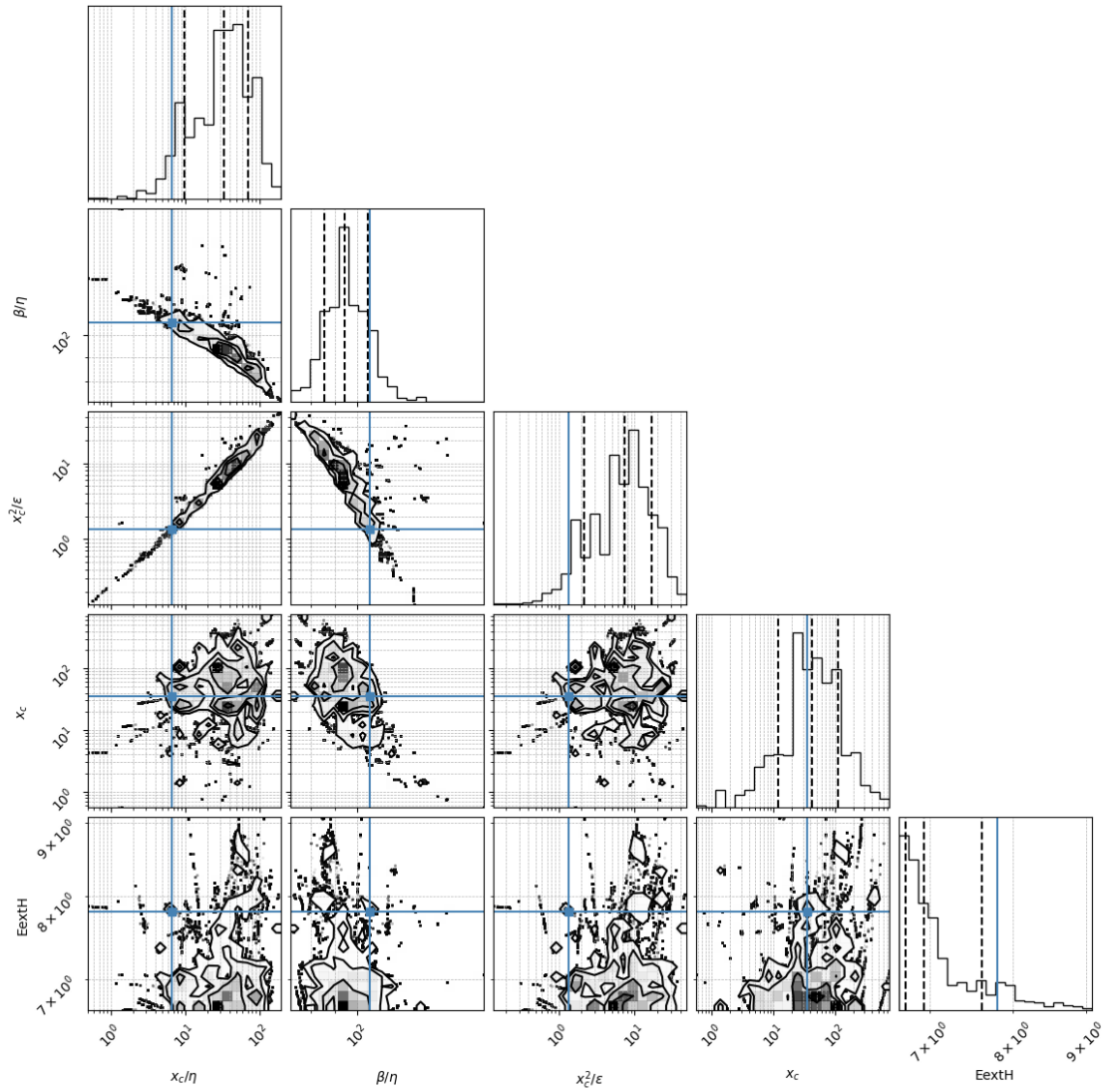
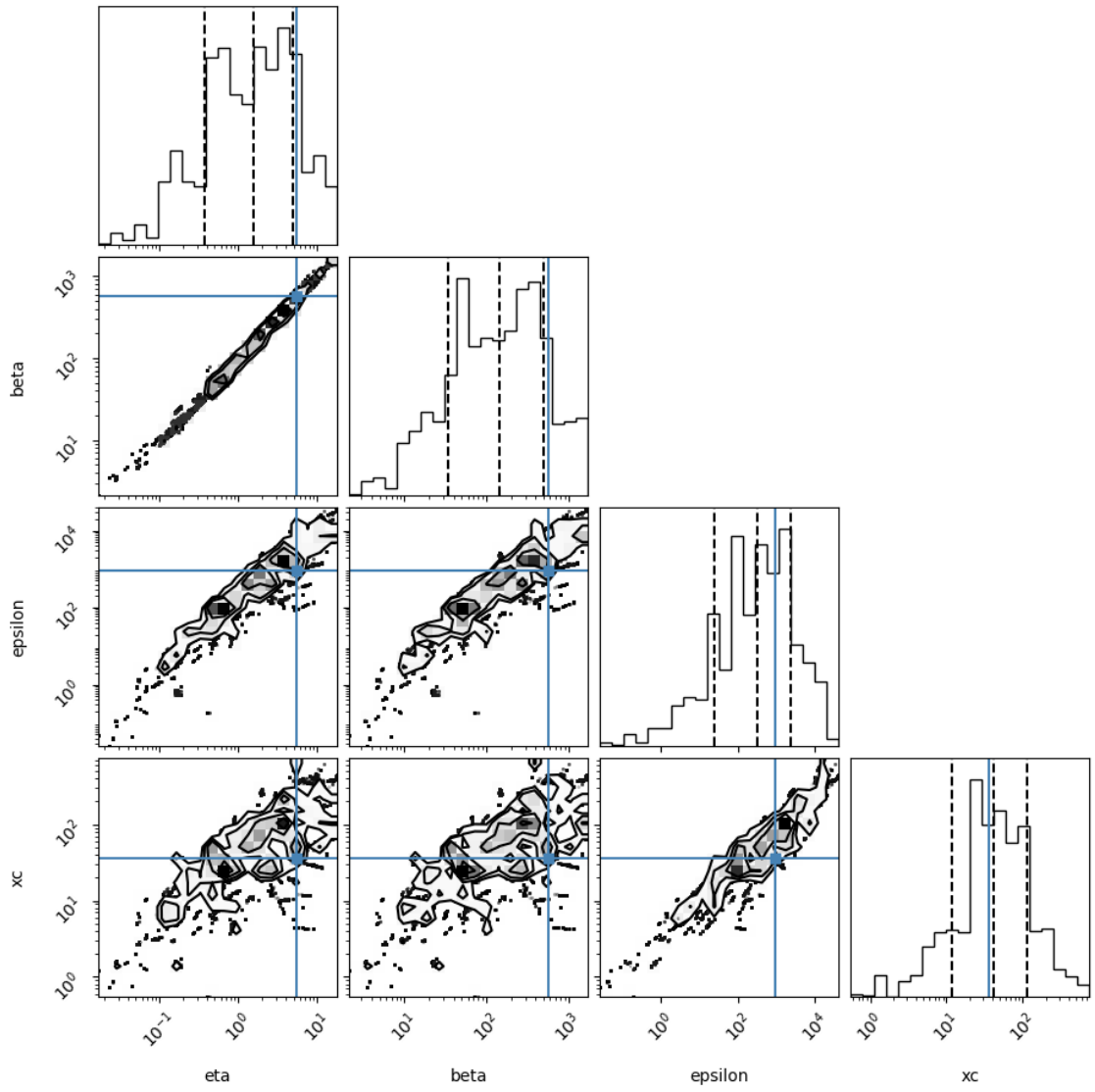
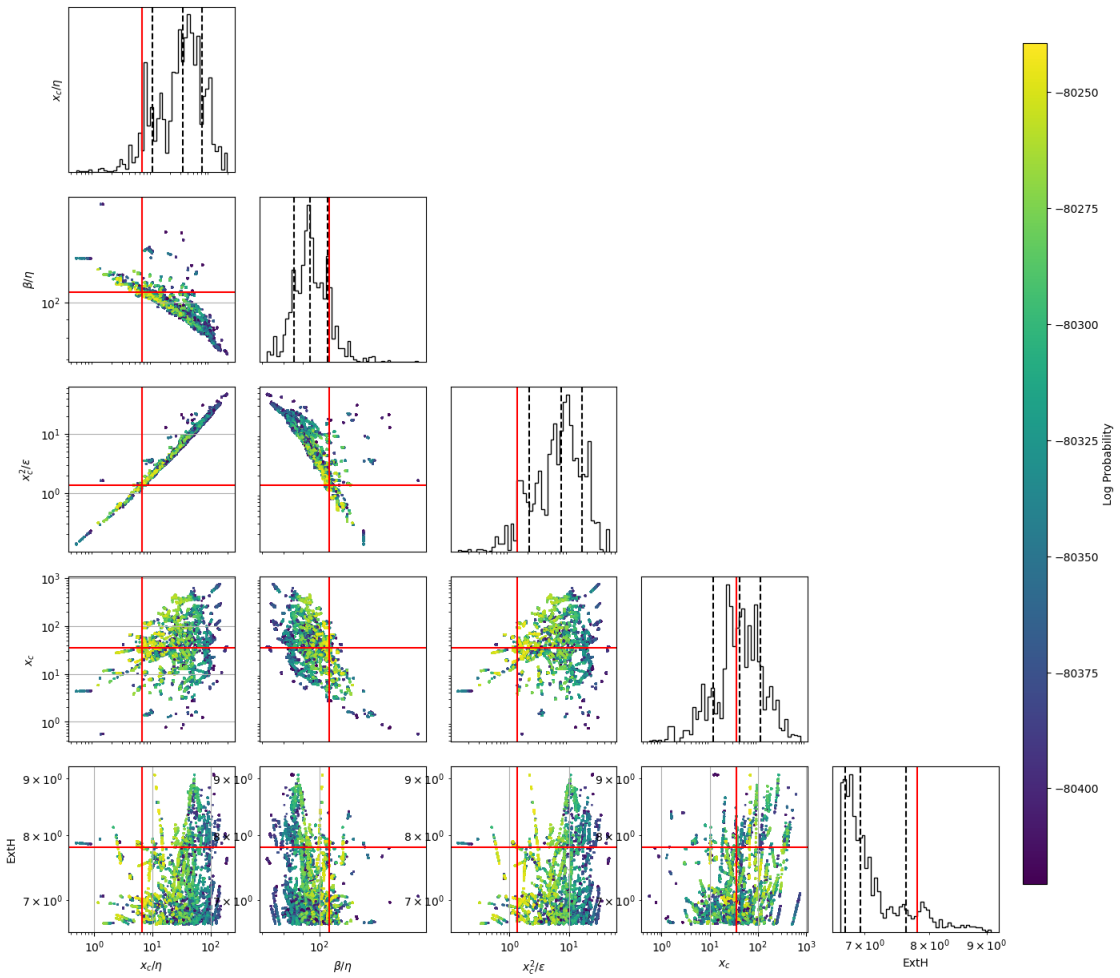

β/η
x_c^2/ε
x_c
EextH
x_c/η
β/η
x_c^2/ε
x_c
EextH



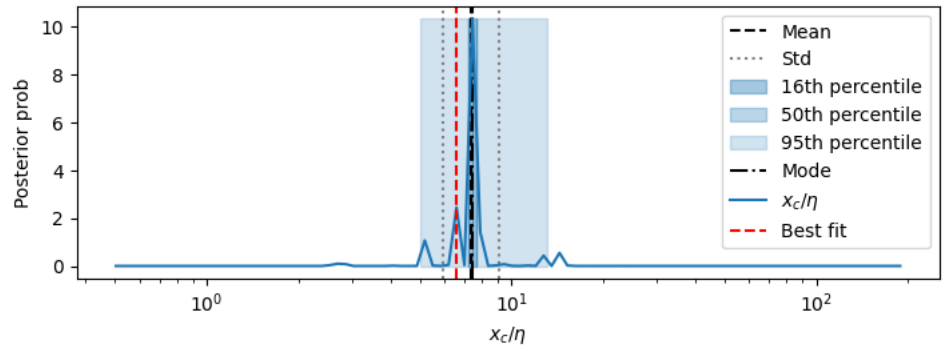
2 2. Heat map corner plot of raw samples

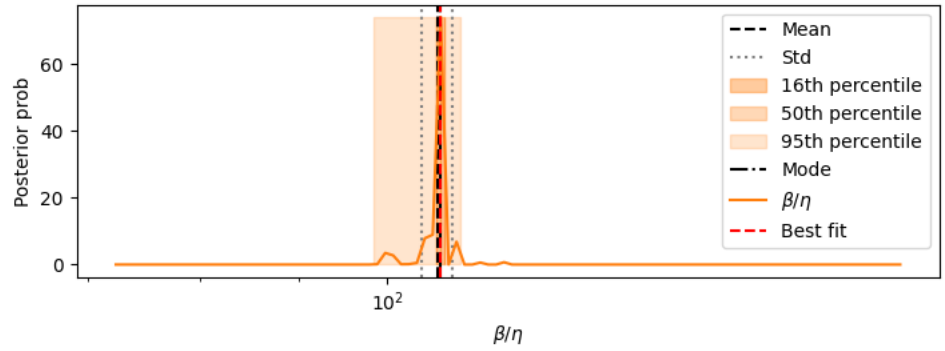
This plot shows all the raw sample points and their lnprobability

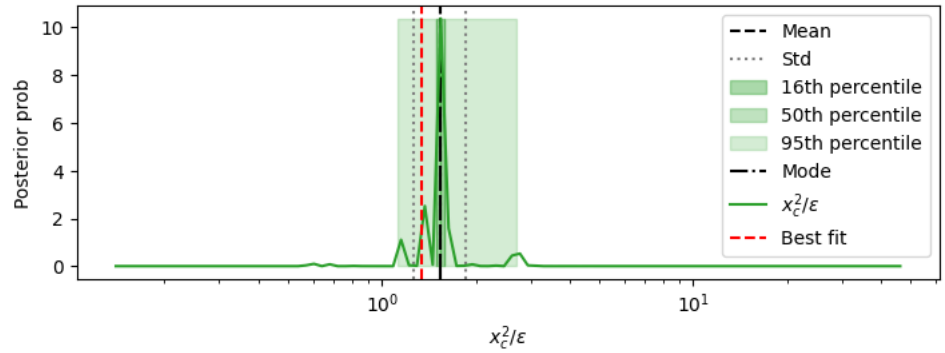


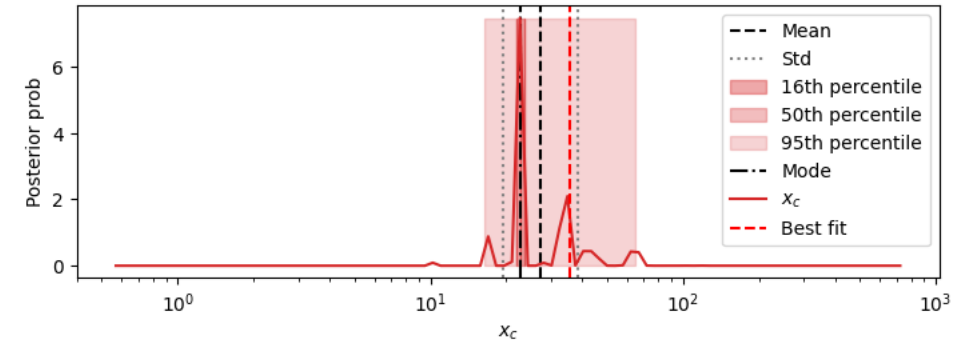
3 3. Posterior distributions of parameters

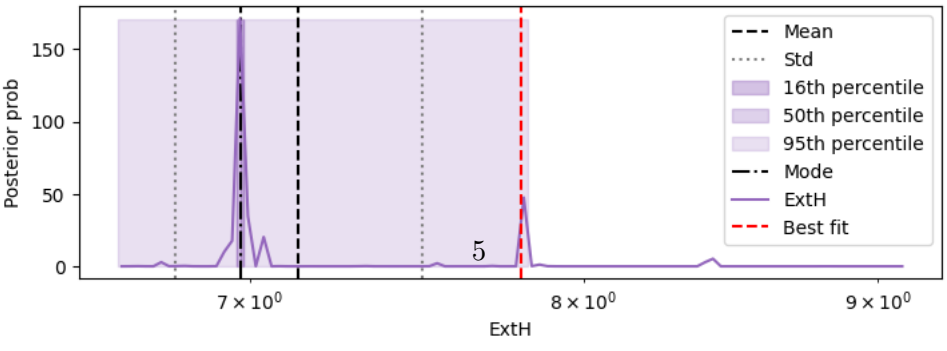
1d marginalizations of posterior distributions. we use a grid of size nbins=100-150


Posterior prob
x_c/η
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c/η
Best fit

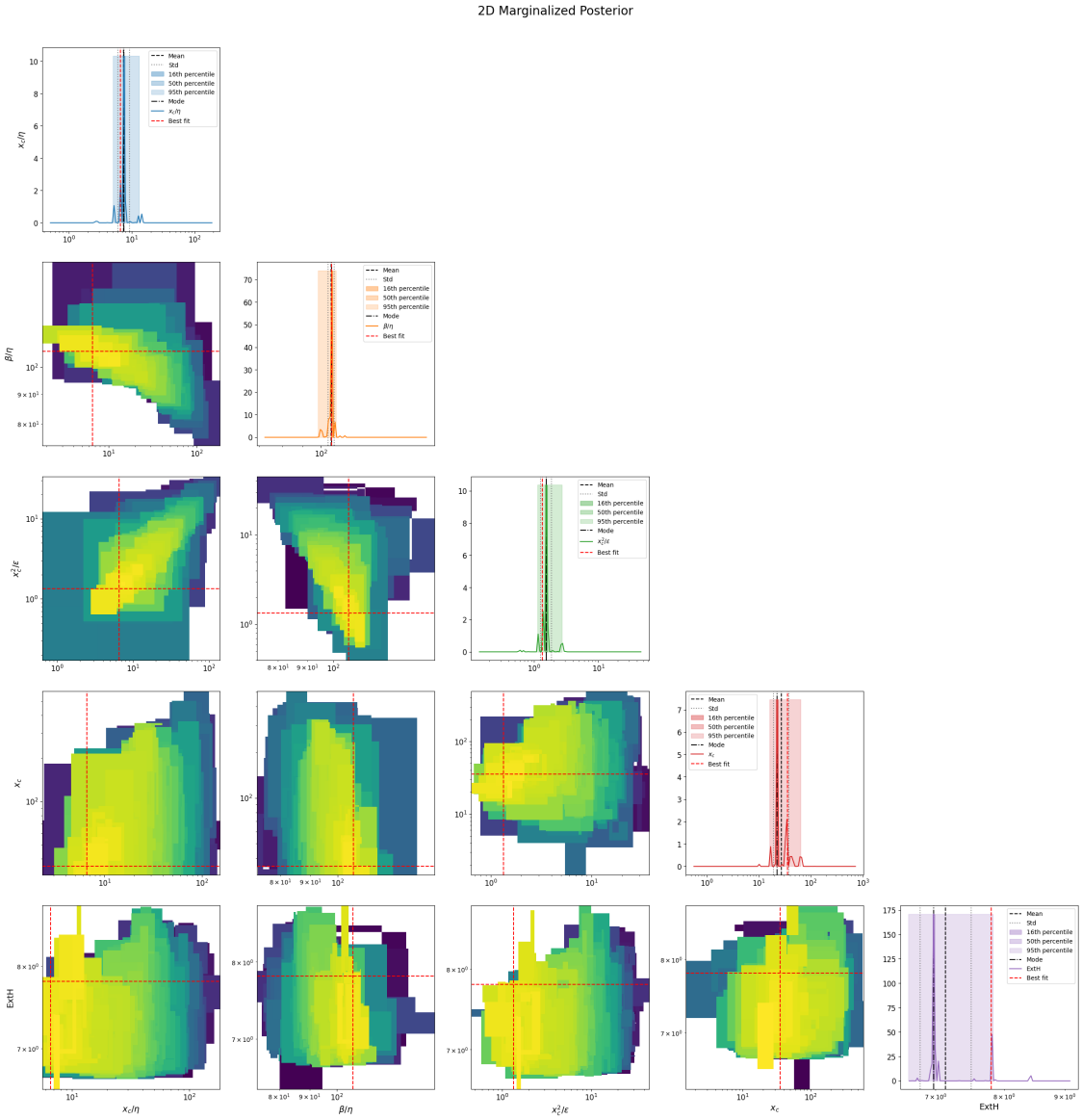

Posterior prob
β/η
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
β/η
Best fit


Posterior prob
x_c^2/ε
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c^2/ε
Best fit


Posterior prob
x_c
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c
Best fit


Posterior prob
ExtH
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
ExtH
Best fit

2D marginalizations of posterior distributions

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Rescaling the samples TIME by 365
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4 4. Table of results

mode is the marginalized mode, max_likwlihood is the sample with highest likelihood mode_overall is the 4D posterior mode

	mean	std	mode	\
xc/eta	7.362	[1.766, 1.424]	7.44	
beta/eta	106.089	[1.94, 1.906]	105.53	
xc^2/epsilon	1.533	[0.33, 0.271]	1.544	
xc	27.304	[10.981, 7.832]	37.508	
ExtH	7.138	[0.361, 0.344]	6.973	
eta	3.769	[0.965, 0.768]	3.714	
beta	389.699	[95.213, 76.518]	359.311	
epsilon	501.818	[449.244, 237.039]	339.138	
sqrt(xc/eta)	2.738	[0.332, 0.296]	2.728	
s= eta^0.5*xc^1.5/epsilon	0.574	[0.059, 0.0535]	0.571	
beta*xc/epsilon	22.153	[0.905, 0.869]	22.24	
eta*xc/epsilon	0.209	[0.00533, 0.0052]	0.206	
Fx=beta^2/eta*xc	1481.832	[436.447, 337.147]	1566.64	
Dx =beta*epsilon/eta*xc^2	66.056	[15.762, 12.725]	66.772	
Pk=beta*k/epsilon	0.415	[0.211, 0.14]	0.274	
Fk=beta^2/eta*k	78691.446	[15596.863, 13016.881]	86422.329	
Dk =beta*epsilon/eta*k^2	195620.158	[140118.217, 81640.795]	523849.586	
Fk^2/Dk=beta^3/eta*epsilon	32818.572	[12005.357, 8789.918]	31856.079	
epsilon/beta^2	0.00326	[0.000886, 0.000696]	0.00316	
k/beta	0.00129	[0.000315, 0.000253]	0.00139	
k^2/epsilon	0.000518	[0.000414, 0.00023]	0.000736	
best fit_MedianLifetime	75.37	0.51	75.37	
best fit_MaxLifetime	104.12	0	104.12	
data_MedianLifetime	68.0	0.51	68.0	
data_MaxLifetime	106.0	0	106.0	

	percentile_16	\
xc/eta	[7.221, 7.667]	
beta/eta	[105.034, 106.028]	
xc^2/epsilon	[1.499, 1.59]	
xc	[36.178, 38.887]	
ExtH	[6.963, 6.984]	
eta	[3.587, 3.845]	
beta	[347.46, 397.348]	
epsilon	[273.693, 364.262]	
sqrt(xc/eta)	[2.687, 2.769]	
s= eta^0.5*xc^1.5/epsilon	[0.563, 0.58]	
beta*xc/epsilon	[21.944, 22.54]	
eta*xc/epsilon	[0.204, 0.208]	
Fx=beta^2/eta*xc	[1511.333, 1623.97]	
Dx =beta*epsilon/eta*xc^2	[64.651, 68.962]	
Pk=beta*k/epsilon	[0.261, 0.318]	
Fk=beta^2/eta*k	[83630.576, 95369.299]	
Dk =beta*epsilon/eta*k^2	[488904.401, 561292.532]	
Fk^2/Dk=beta^3/eta*epsilon	[30381.992, 33401.687]	
epsilon/beta^2	[0.00303, 0.0033]	

```
k/beta                                          [0.00126, 0.00144]
k^2/epsilon                                    [0.000594, 0.000791]
best fit_MedianLifetime     [74.88000000000001, 75.88000000000001]
best fit_MaxLifetime                             [104.12, 104.12]
data_MedianLifetime                                 [67.5, 68.51]
data_MaxLifetime                                   [106.0, 106.0]

                                                    percentile_50  \
xc/eta                                              [6.801, 8.14]
beta/eta                                          [104.049, 106.028]
xc^2/epsilon                                        [1.414, 1.686]
xc                                                [33.658, 41.799]
ExtH                                                [6.963, 7.007]
eta                                                 [3.345, 4.123]
beta                                              [324.916, 454.398]
epsilon                                           [237.241, 559.291]
sqrt(xc/eta)                                        [2.608, 2.853]
s= eta^0.5*xc^1.5/epsilon                           [0.546, 0.597]
beta*xc/epsilon                                    [21.363, 22.54]
eta*xc/epsilon                                      [0.204, 0.213]
Fx=beta^2/eta*xc                                 [1406.509, 1623.97]
Dx =beta*epsilon/eta*xc^2                           [64.651, 73.561]
Pk=beta*k/epsilon                                      [0.214, 0.35]
Fk=beta^2/eta*k                                [83630.576, 108755.716]
Dk =beta*epsilon/eta*k^2                       [370931.154, 644398.59]
Fk^2/Dk=beta^3/eta*epsilon                      [27635.294, 36721.511]
epsilon/beta^2                                      [0.00303, 0.00359]
k/beta                                              [0.00118, 0.00154]
k^2/epsilon                                       [0.000446, 0.00105]
best fit_MedianLifetime     [74.88000000000001, 75.88000000000001]
best fit_MaxLifetime                             [104.12, 104.12]
data_MedianLifetime                                 [67.5, 68.51]
data_MaxLifetime                                   [106.0, 106.0]

                                                    percentile_95  \
xc/eta                                              [5.683, 9.741]
beta/eta                                          [100.2, 108.045]
xc^2/epsilon                                        [1.186, 2.694]
xc                                                [20.305, 48.292]
ExtH                                                [6.919, 7.073]
eta                                                  [3.12, 5.841]
beta                                              [324.916, 635.479]
epsilon                                           [237.241, 1521.112]
sqrt(xc/eta)                                        [2.456, 3.121]
s= eta^0.5*xc^1.5/epsilon                           [0.515, 0.653]
beta*xc/epsilon                                   [20.248, 23.153]
eta*xc/epsilon                                        [0.2, 0.217]
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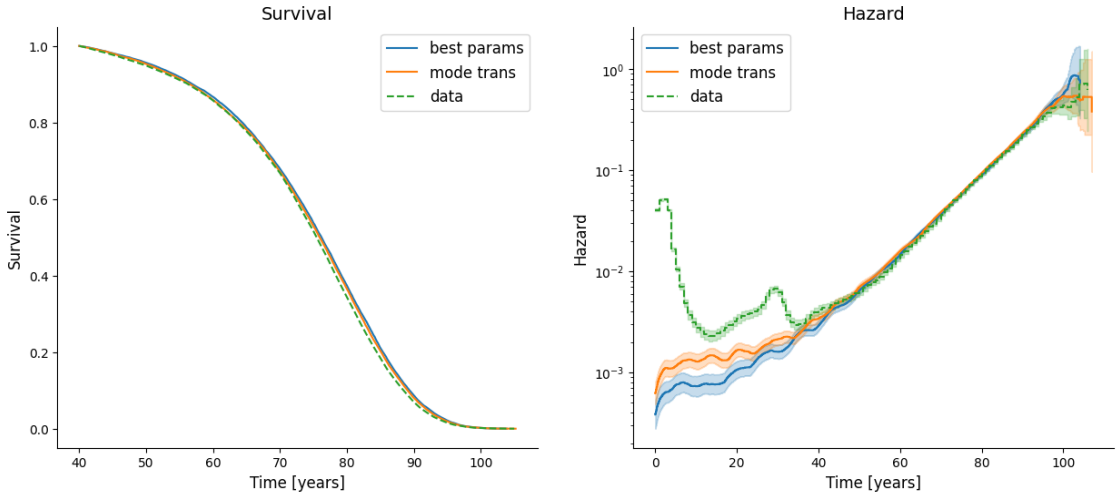
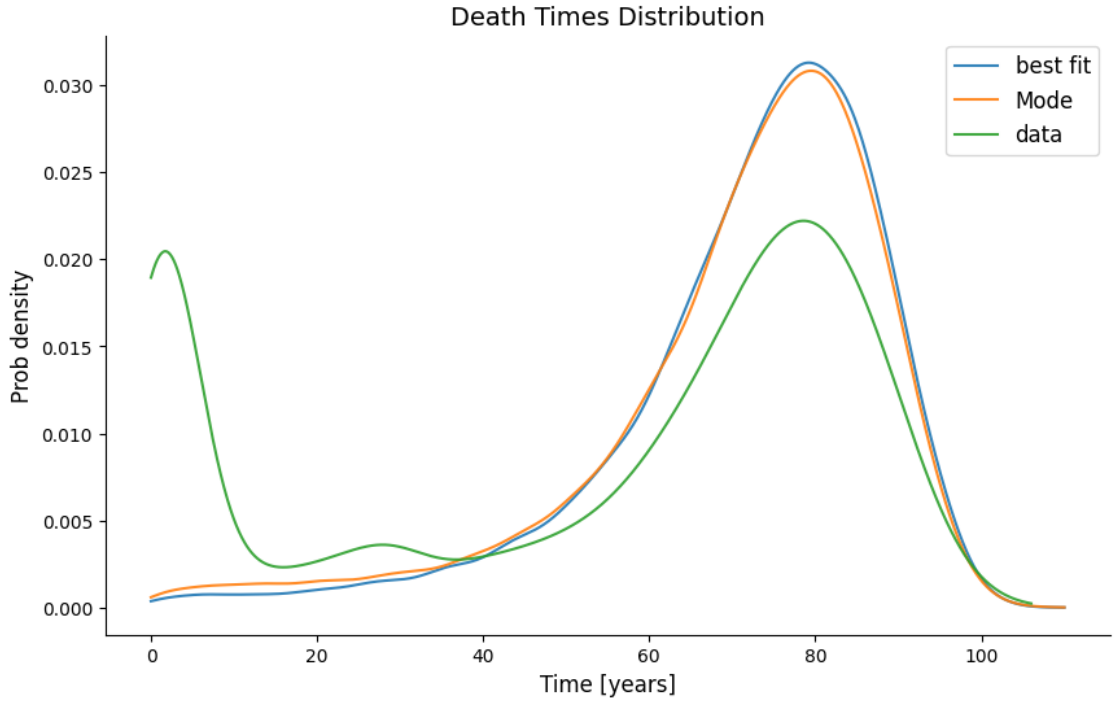
Fx=beta^2/eta*xc	[791.408, 2014.797]
Dx =beta*epsilon/eta*xc^2	[53.267, 83.7]
Pk=beta*k/epsilon	[0.131, 0.471]
Fk=beta^2/eta*k	[64309.938, 124021.104]
Dk =beta*epsilon/eta*k^2	[107054.629, 739809.492]
Fk^2/Dk=beta^3/eta*epsilon	[14236.363, 44383.837]
epsilon/beta^2	[0.00255, 0.00652]
k/beta	[0.000841, 0.00165]
k^2/epsilon	[0.000164, 0.00105]
best fit_MedianLifetime	[74.88000000000001, 75.88000000000001]
best fit_MaxLifetime	[104.12, 104.12]
data_MedianLifetime	[67.5, 68.51]
data_MaxLifetime	[106.0, 106.0]

	max_likelihood	mode_overall
xc/eta	6.607	7.458
beta/eta	106.418	106.184
xc^2/epsilon	1.343	1.573
xc	35.589	23.452
ExtH	7.802	6.98
eta	5.387	3.145
beta	573.253	333.91
epsilon	942.903	349.616
sqrt(xc/eta)	2.57	2.731
s= eta^0.5*xc^1.5/epsilon	0.523	0.576
beta*xc/epsilon	21.637	22.399
eta*xc/epsilon	0.203	0.211
Fx=beta^2/eta*xc	1714.166	1511.835
Dx =beta*epsilon/eta*xc^2	79.225	67.497
Pk=beta*k/epsilon	0.304	0.478
Fk=beta^2/eta*k	122009.265	70911.803
Dk =beta*epsilon/eta*k^2	401368.673	148494.736
Fk^2/Dk=beta^3/eta*epsilon	37088.746	33863.044
epsilon/beta^2	0.00287	0.00314
k/beta	0.000872	0.0015
k^2/epsilon	0.000265	0.000715
best fit_MedianLifetime	75.37	NaN
best fit_MaxLifetime	104.12	NaN
data_MedianLifetime	68.0	NaN
data_MaxLifetime	106.0	NaN

5 5. Fits of simulations to data

best params is the sample with highest likelihood. mode trans is the 4D posterior mode in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c


Survival
best params
mode trans
data
Survival
Time [years]
Hazard
best params
mode trans
data
Hazard
Time [years]


Death Times Distribution
best fit
Mode
data
Prob density
Time [years]