

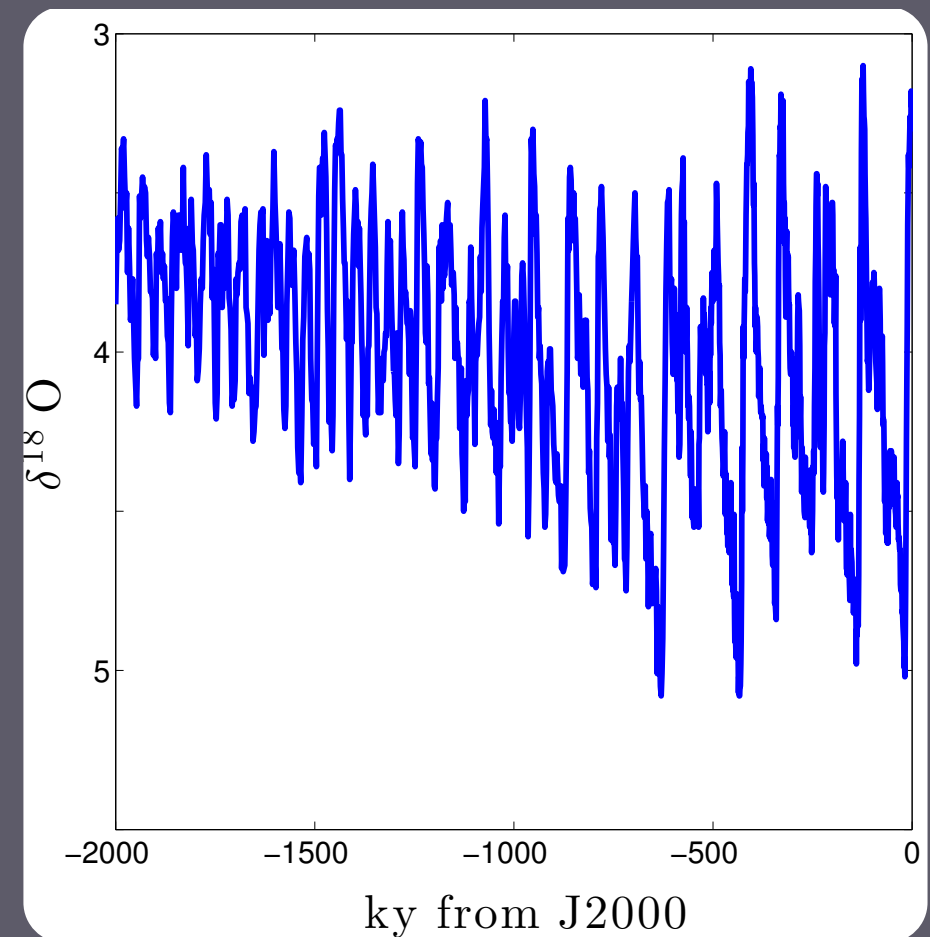
PAILLARD MODEL DATA ANALYSIS

Fitting Paillard's three
state ODE model to
available historical
climate data records
using evolutionary
computation

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DEPARTMENT OF MATH
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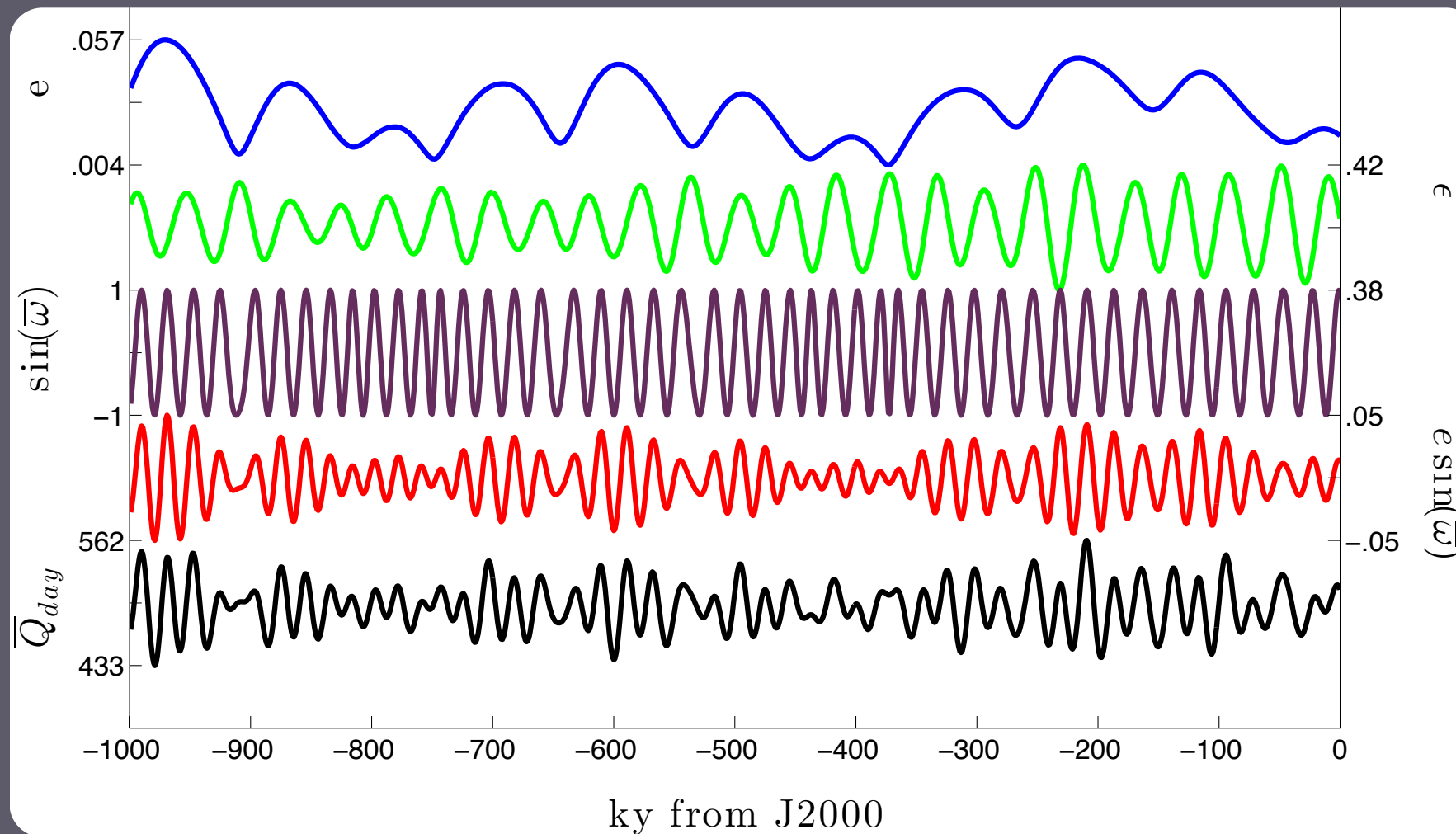
PLEISTOCENE ICE AGES

“one of the most fascinating puzzles in the earth sciences still awaiting a satisfactory explanation”



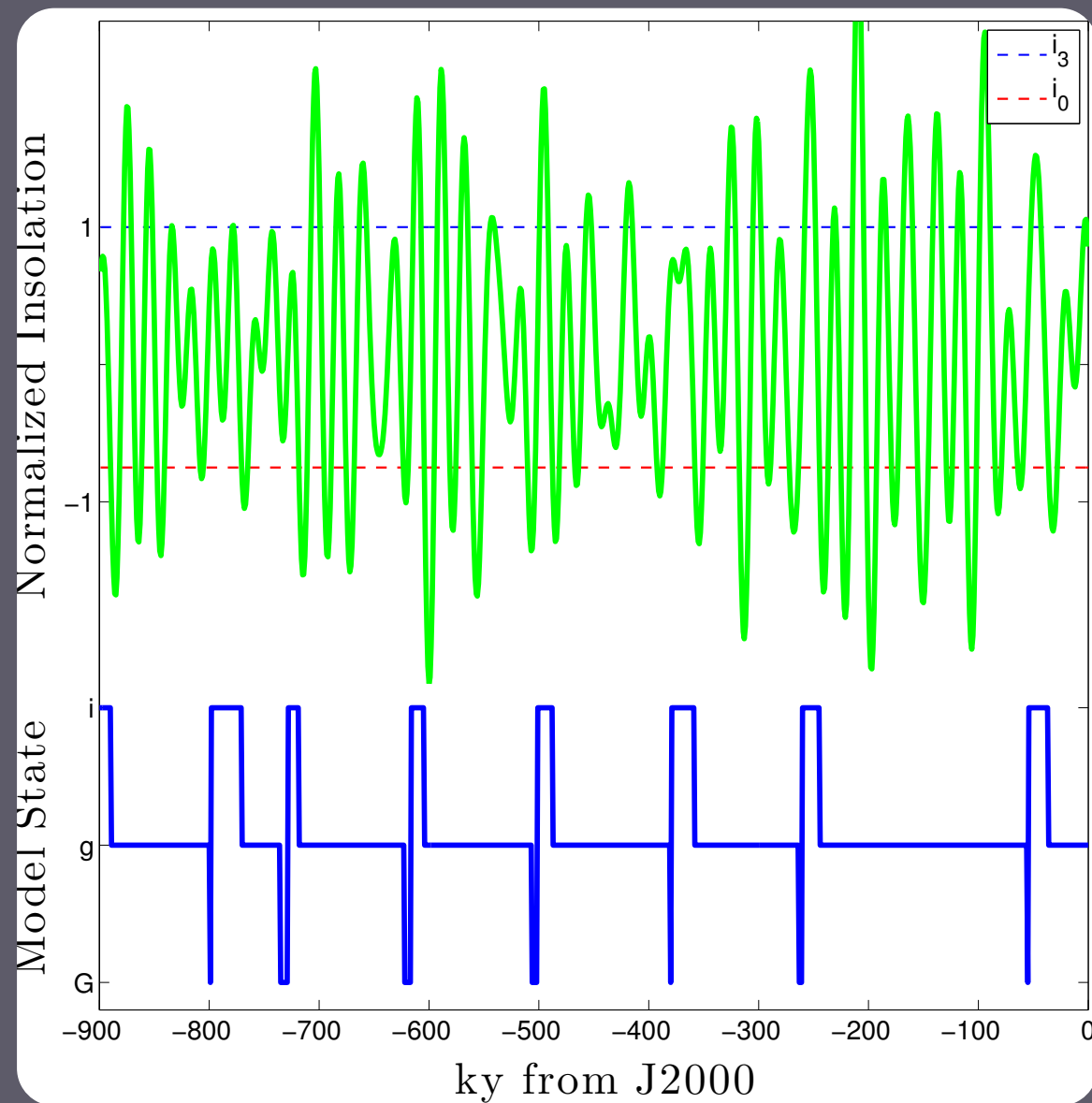
LR04 benthic $\delta_{18}O$ stack

MILANOVITCH THEORY



attempts to explain the past climatic variation from the changing orbital parameters of the Earth

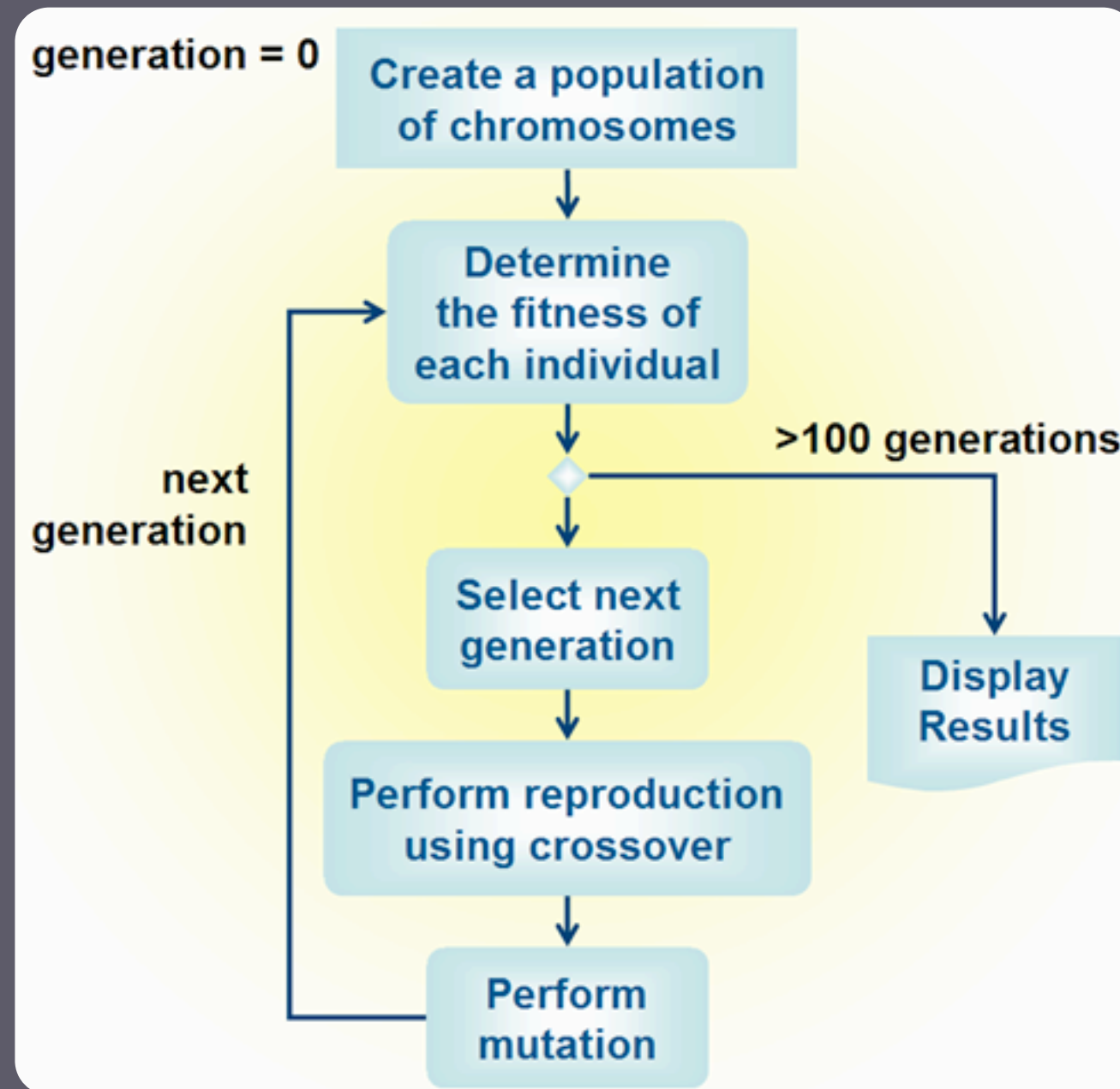
PAILLARD'S MODEL



transitions
between three
atmospheric
states based on
insolation to
explain the ice
volume

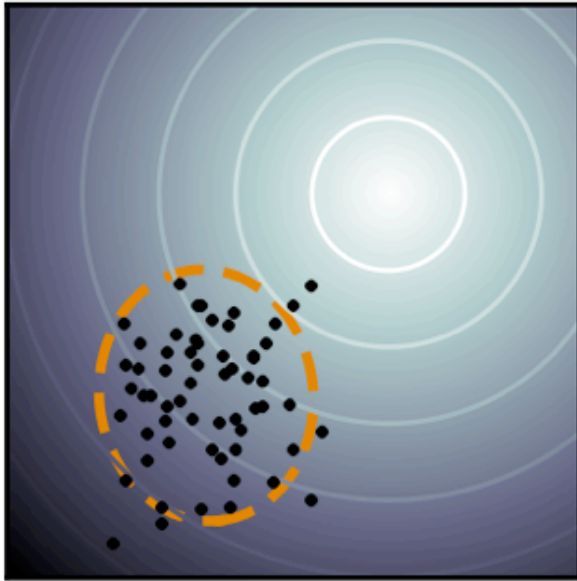
EVOLUTIONARY COMPUTATION

GENETIC ALGORITHM

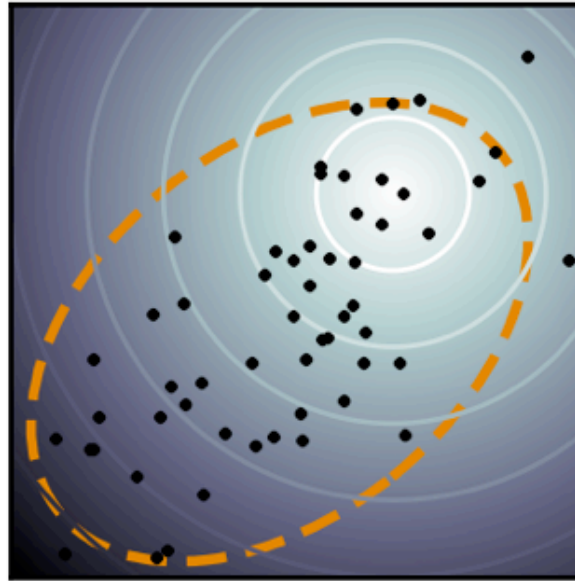


CMAES

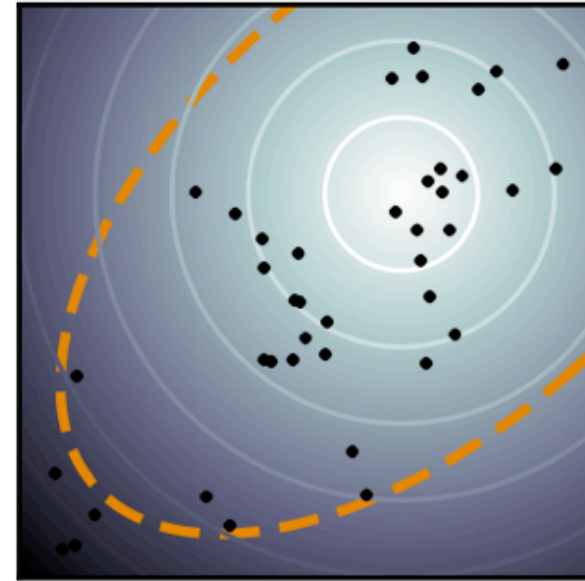
Generation 1



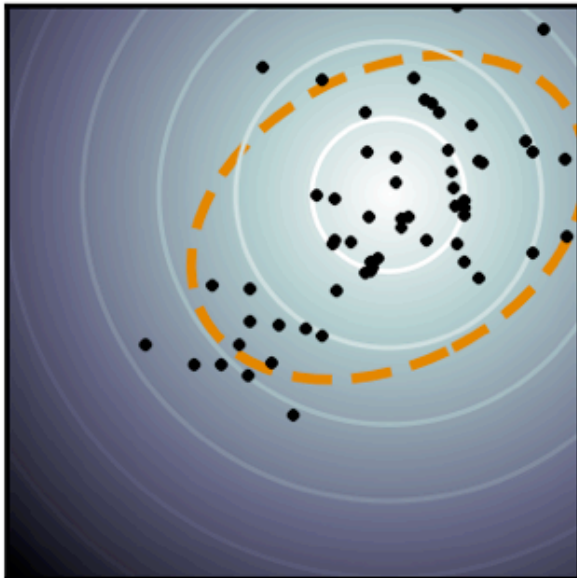
Generation 2



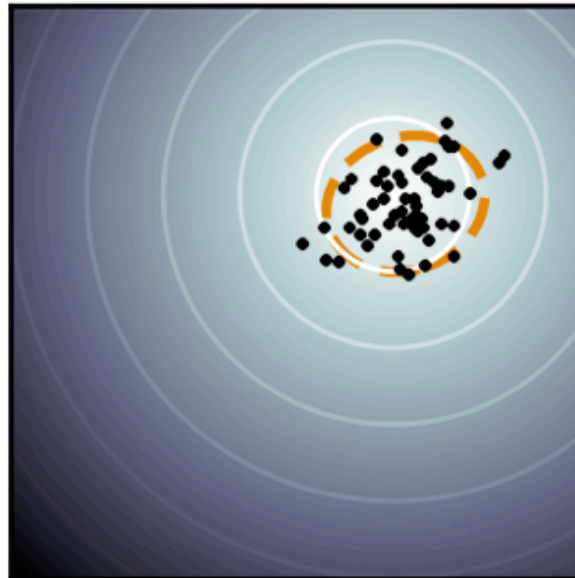
Generation 3



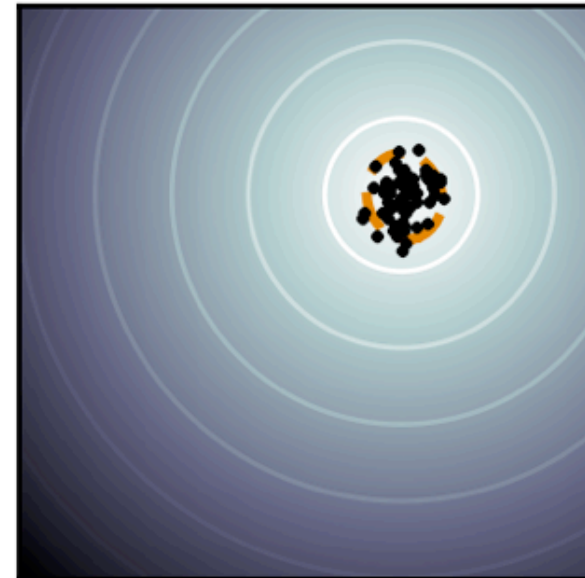
Generation 4



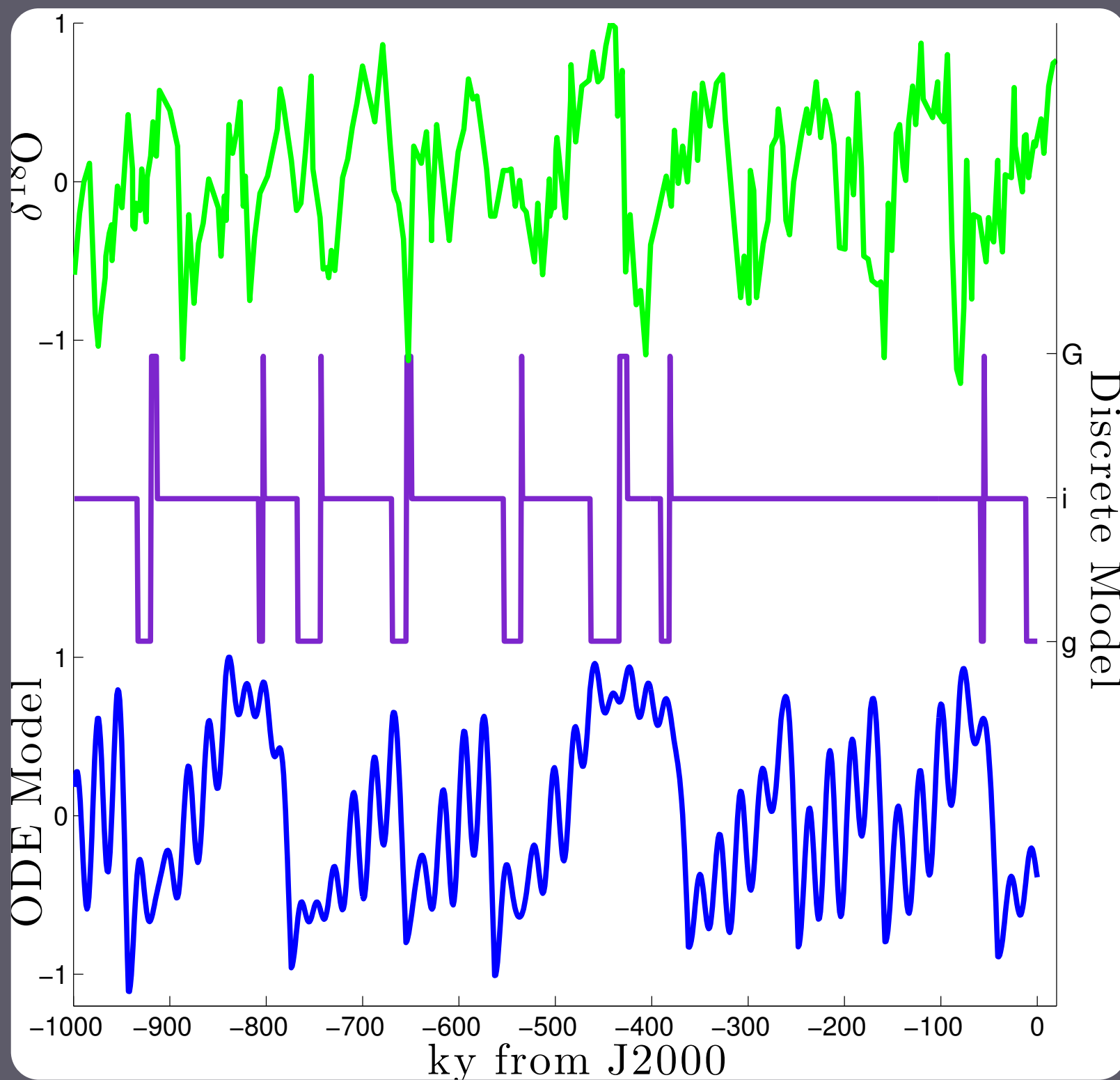
Generation 5



Generation 6



PAILLARD'S MODEL: FITTED



QUESTIONS