Results of the 1st ALTER-Net scenarios questionnaire on Europe in the 2050s

The ALTER-Net Summer School Participants

SYKE

Scenarios questionnaire

Your task:

- To consider the current state of the society, economy and environment in Europe
- To think about plausible developments of these by the 2050s
- To assign subjective probabilities to different outcomes

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ALTER-Net 2050 Scenarios questionnaire

Please enter your estimate of the percentage likelihood of each outcome listed occurring by 2050

Population of Europe (505 million in 1995)											Totals
Population (million)	≤ 405	405-430	430-455	455-480	480-505	505-530	530-555	555-580	580-605	> 605	
Likelihood of occurrence (%)											0
Gross Domestic Product (GDP) per capita (OEC ; Eastern Europe = 2800 in 1995)											
OECD Europe (thousand US$)	< 2		-33.6	33.6-38.6	38.6-43.6	43.6-48.6	48.6-53.6	53.6-58.6	58.6-63.6	> 63.6	
Likelihood of occurrence (%)											0
Eastern Europe (thousand US$)	< 2		12.8	12.8-17.8	17.8-22.8	22.8-27.8	27.8-32.8	32.8-37.8	37.8-42.8	> 42.8	
Likelihood of occurrence (%)											0
Change in emissions of acidifying and eutrophying compounds (relative to 2000)											
Change in SO_2 emissions (%)	≤ -80	-80 - -60	-60 - -40	-40 - -20	-20 - 0	0 - 20	20 - 40	40 - 60	60 - 80	> 80	
Likelihood of occurrence (%)											0
Change in NO_x emissions (%)	≤ -80	-80 - -60	-60 - -40	-40 - -20	-20 - 0	0 - 20	20 - 40	40 - 60	60 - 80	> 80	
Likelihood of occurrence (%)											0
Change in European land use (relative to 1995)											
Change in agricultural area (%)	≤ -20	-20 - -15	-15 - -10	-10 - -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	> 20	
Likelihood of occurrence (%)											0
Change in urban area (%)	≤ -20	-20 - -15	-15 - -10	-10 - -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	> 20	
Likelihood of occurrence (%)											0
Change in forest area (%)	≤ -20	-20 - -15	-15 - -10	-10 - -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	> 20	
Likelihood of occurrence (%)											0
Relative sea-level change (cm)											
Helsinki, Finland	≤ -40	-40 - -30	-30 - -20	-20 - -10	-10 - 0	0 - 10	10 - 20	20 - 30	30 - 40	> 40	
Likelihood of occurrence (%)											0
Hamburg, Germany	≤ -40	-40 - -30	-30 - -20	-20 - -10	-10 - 0	0 - 10	10 - 20	20 - 30	30 - 40	> 40	
Likelihood of occurrence (%)											0
Venice, Italy	≤ -40	-40 - -30	-30 - -20	-20 - -10	-10 - 0	0 - 10	10 - 20	20 - 30	30 - 40	> 40	
Likelihood of occurrence (%)											0

Enter value
Integer between 0 and 100 (row sum should be 100)

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Global mean annual CO_2 concentration (~381 ppm at Mauna Loa, Hawaii in March 2006)											
C02 concentration (ppm)	< 270	270-370	370-470	470-570	570-670	670-770	770-870	870-970	970-1070	>1070	
Likelihood of occurrence (%)											0
Climate in northern Europe (north of 47.5°N) relative to 1961-1990											
Mean winter (DJF) temperature change (°C)	< -8	-8 - -6	-6 - -4	-4 - -2	-2 - 0	0 - 2	2 - 4	4 - 6	6 - 8	> 8	
Likelihood of occurrence (%)											0
Mean winter (DJF) precipitation change (%)	< -40	-40 - -30	-30 - -20	-20 - -10	-10 - 0	0 - 10	10 - 20	20 - 30	30 - 40	> 40	
Likelihood of occurrence (%)											0
Mean summer (JJA) temperature change (°C)	< -8	-8 - -6	-6 - -4	-4 - -2	-2 - 0	0 - 2	2 - 4	4 - 6	6 - 8	> 8	
Likelihood of occurrence (%)											0
Mean summer (JJA) precipitation change (%)	< -40	-40 - -30	-30 - -20	-20 - -10	-10 - 0	0 - 10	10 - 20	20 - 30	30 - 40	> 40	
Likelihood of occurrence (%)											0
Climate in southern Europe (south of 47.5°N) relative to 1961-1990											
Mean winter (DJF) temperature change (°C)	< -8	-8 - -6	-6 - -4	-4 - -2	-2 - 0	0 - 2	2 - 4	4 - 6	6 - 8	> 8	
Likelihood of occurrence (%)											0
Mean winter (DJF) precipitation change (%)	< -40	-40 - -30	-30 - -20	-20 - -10	-10 - 0	0 - 10	10 - 20	20 - 30	30 - 40	> 40	
Likelihood of occurrence (%)											0
Mean summer (JJA) temperature change (°C)	< -8	-8 - -6	-6 - -4	-4 - -2	-2 - 0	0 - 2	2 - 4	4 - 6	6 - 8	> 8	
Likelihood of occurrence (%)											0
Mean summer (JJA) precipitation change (%)	< -40	-40 - -30	-30 - -20	-20 - -10	-10 - 0	0 - 10	10 - 20	20 - 30	30 - 40	> 40	
Likelihood of occurrence (%)											0

Are you more familiar with regions north or south of latitude 47.5°N?

You have been allocated the following random number: 4066907

Enter value
Integer between 0 and 100 (row sum should be 100)

Error: row totals

EXIT

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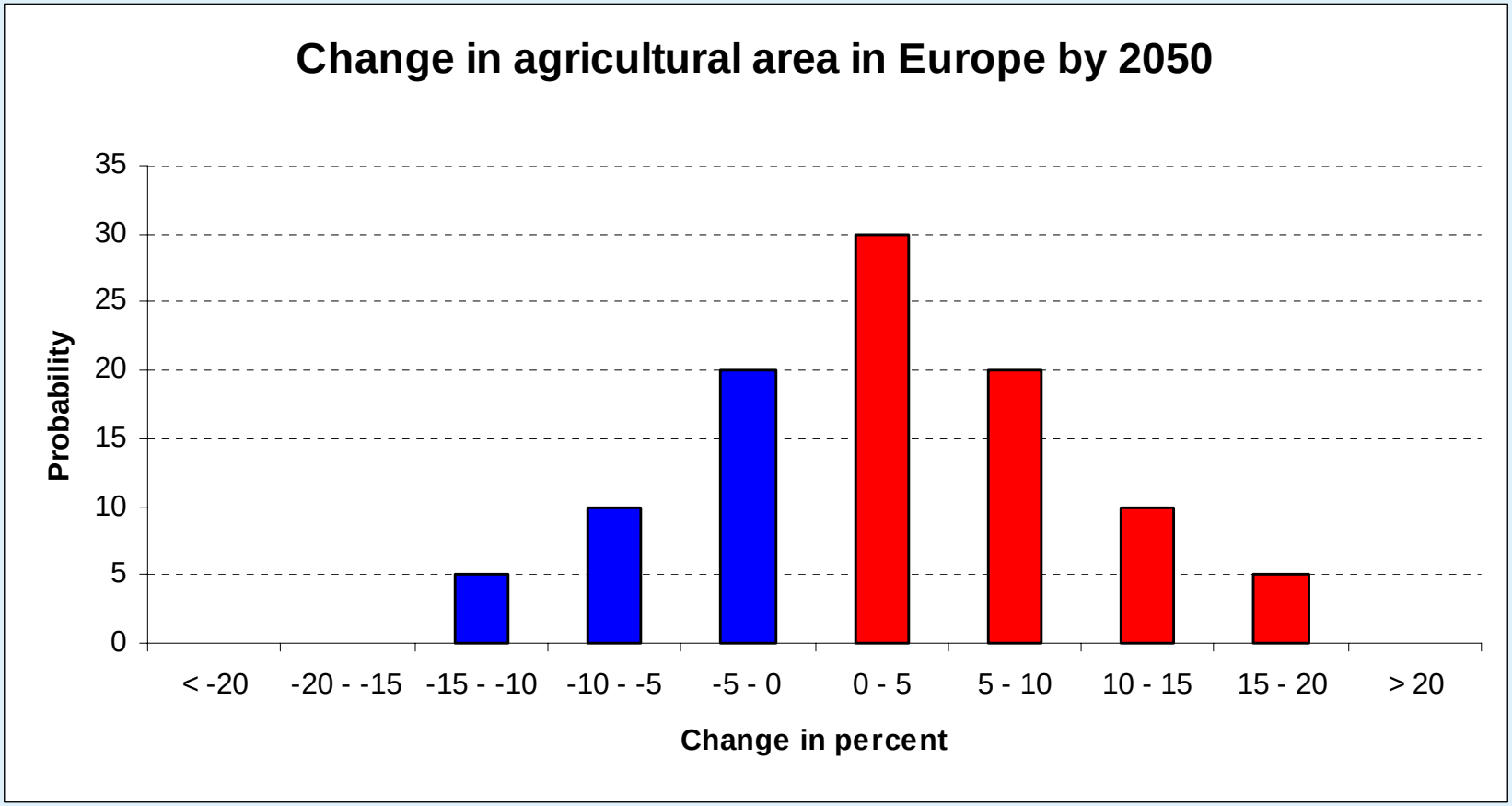
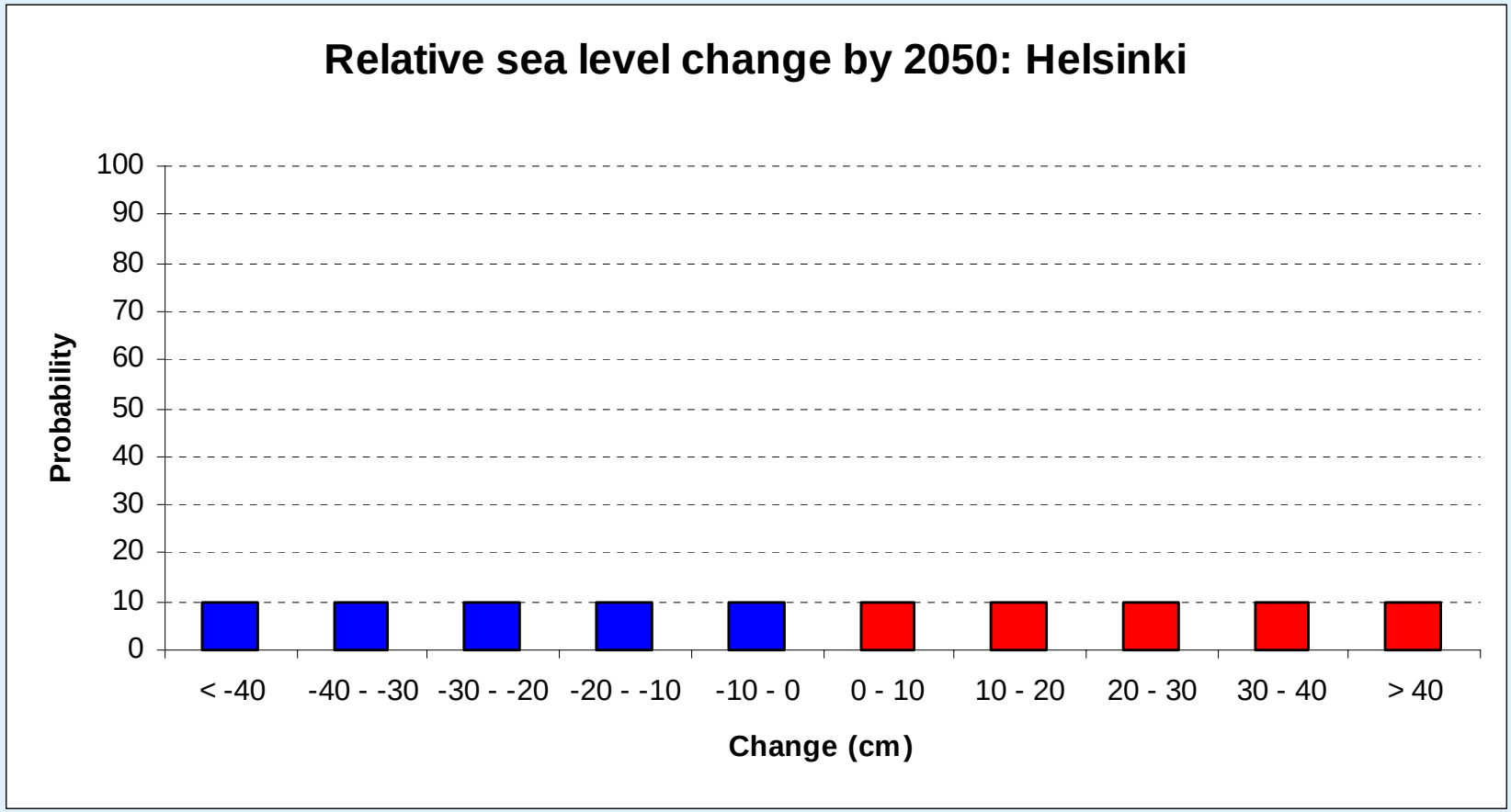
A perfectly normal specimen



AVEC 2

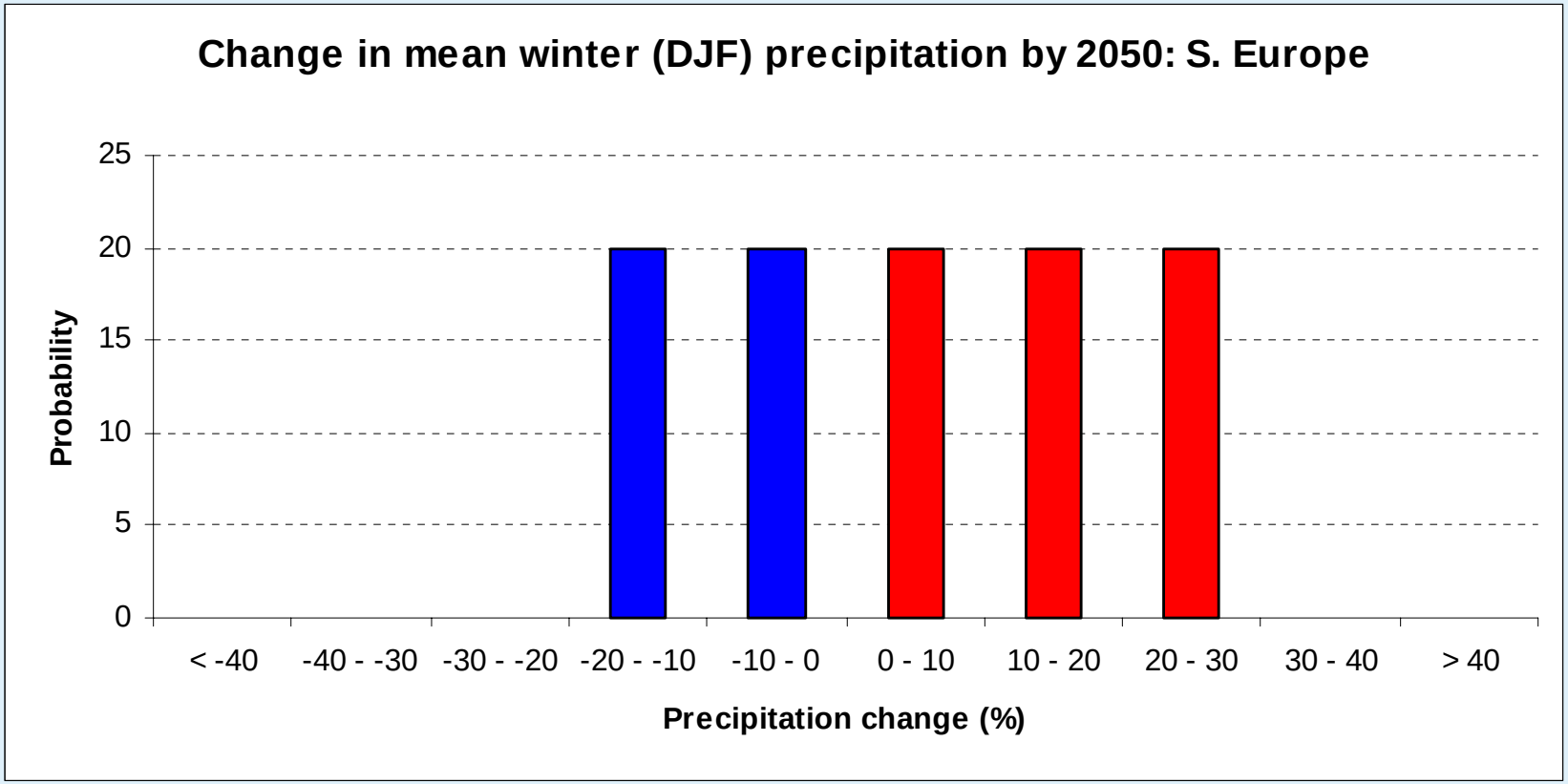
SYKE

Hedger – anything is possible



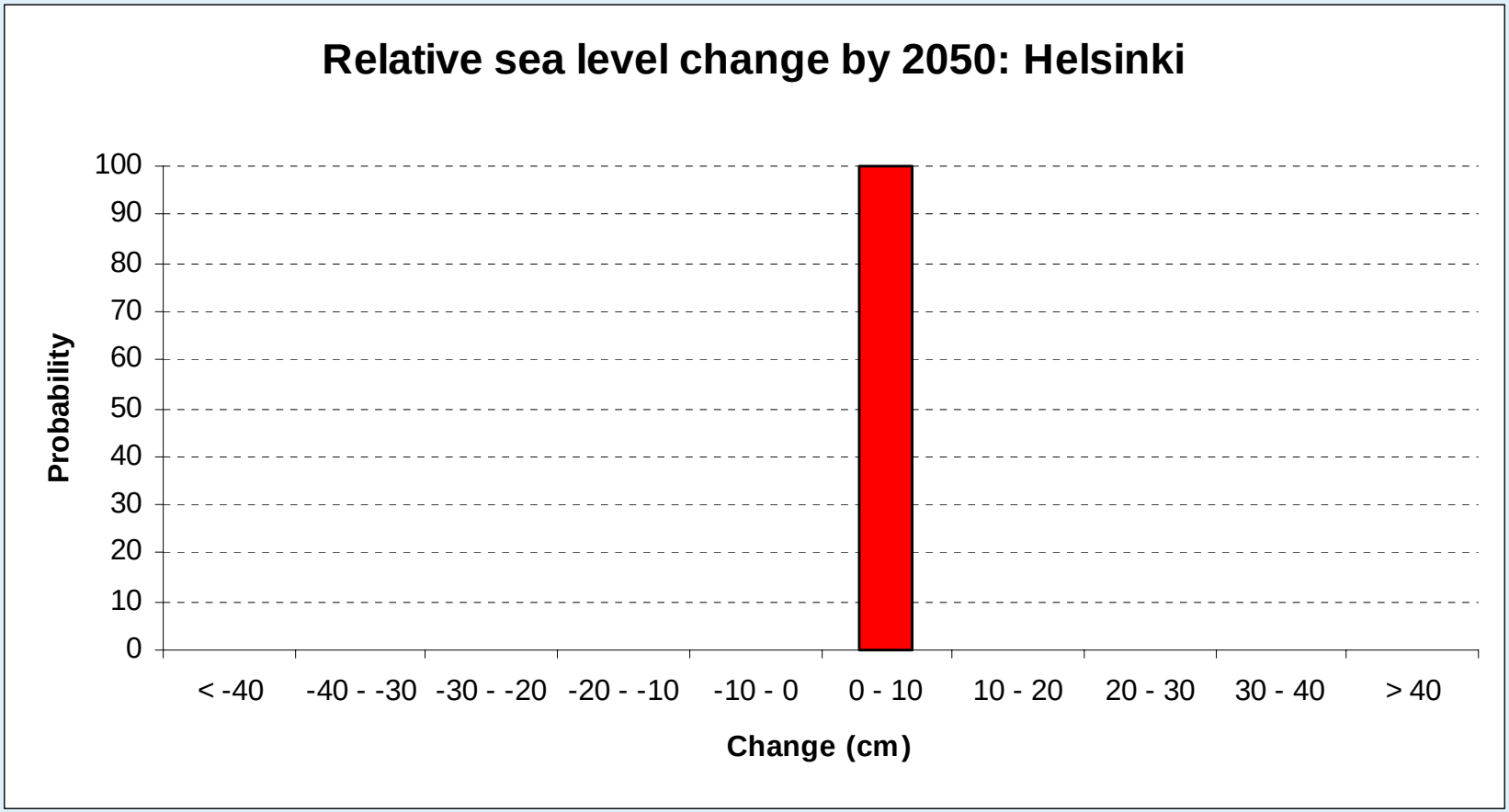
SYKE

A slightly less extreme ALTER-Net example



SYKE

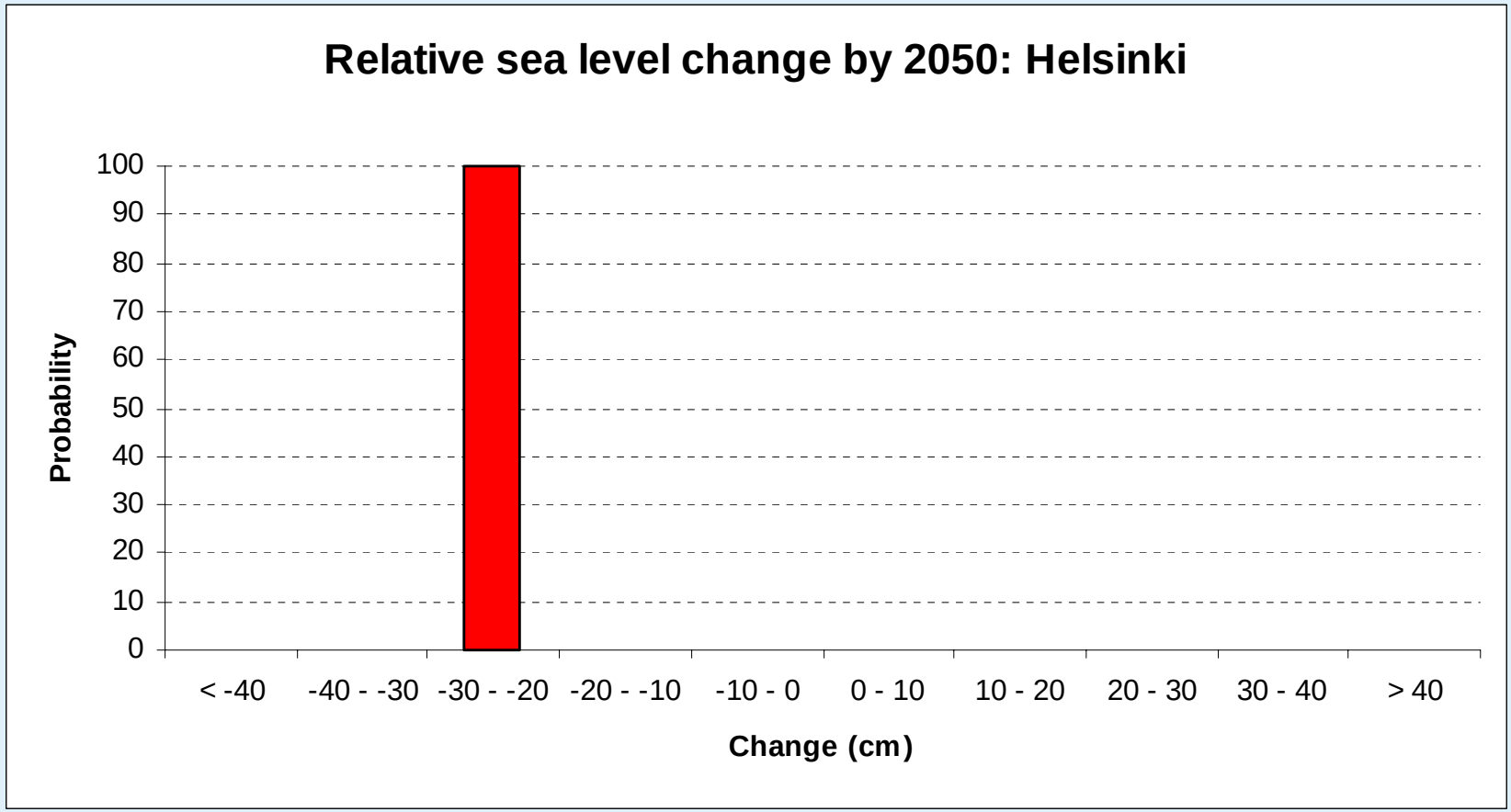
Tony Blair* model



* Formerly known as the Margaret Thatcher model

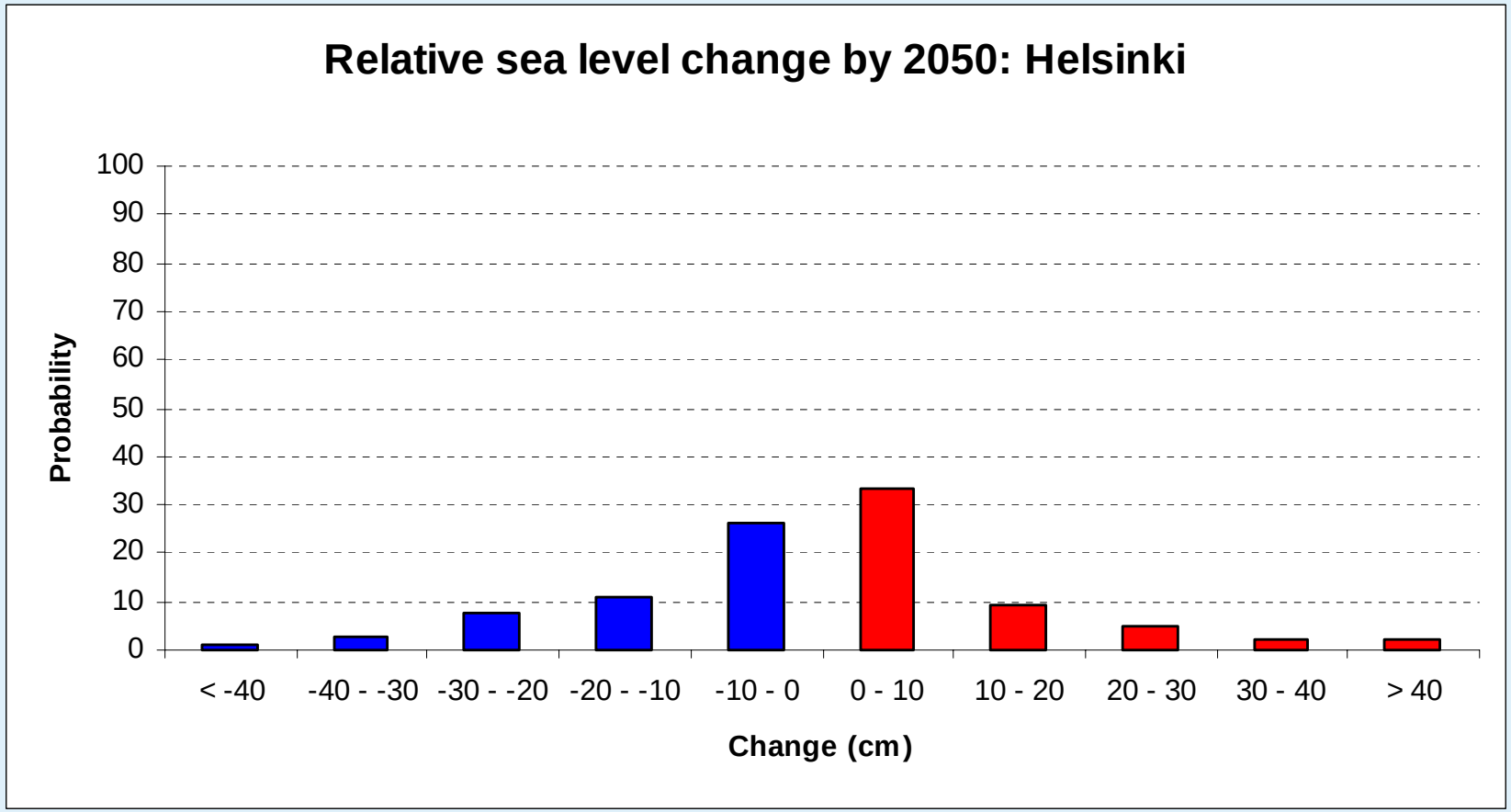
SYKE

Sorry, but Blair is wrong!



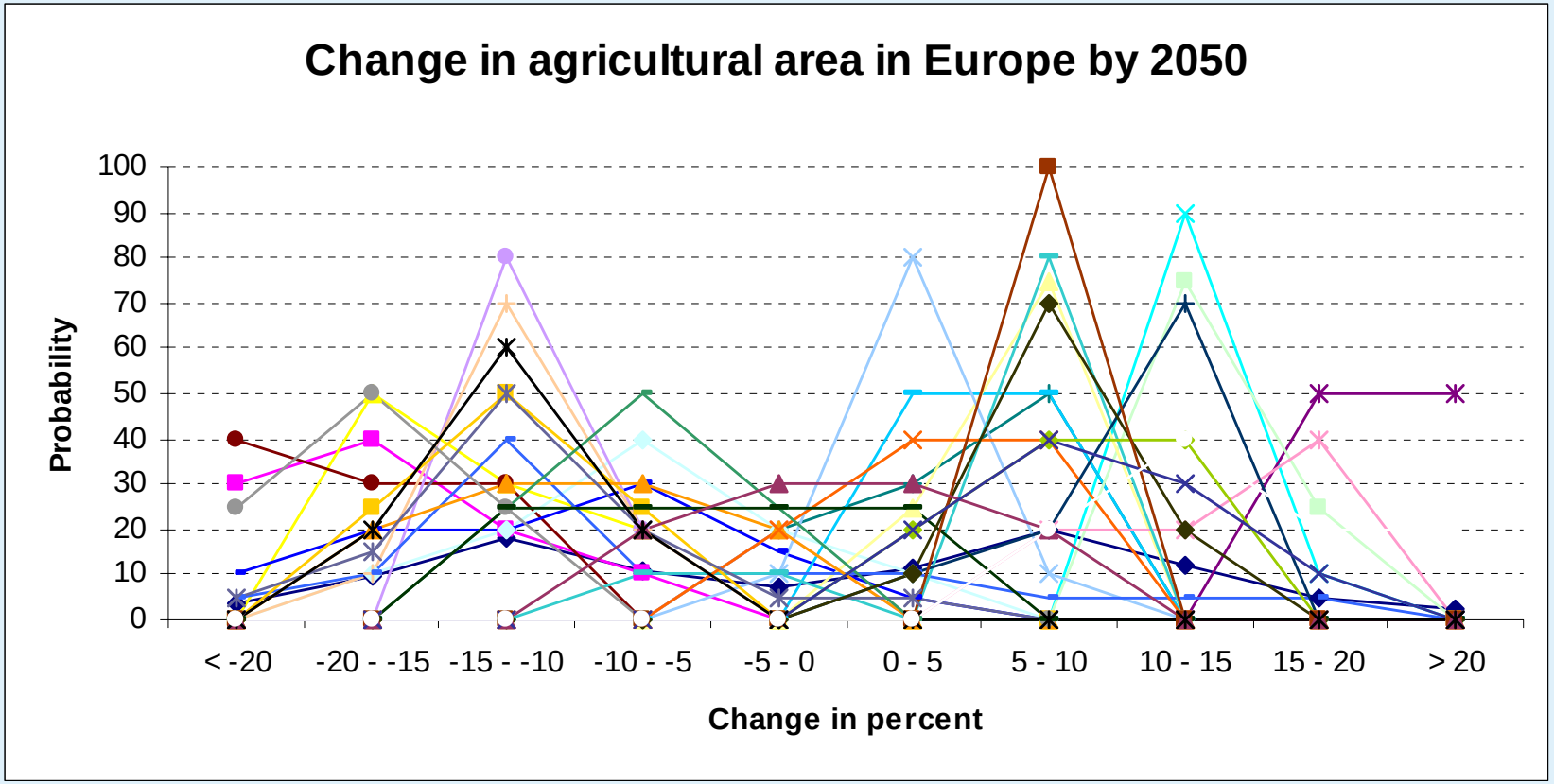
SYKE

The full group – almost normal



SYKE

ALTER-Net version of chaos



SYKE

Now the full results – well almost

SYKE

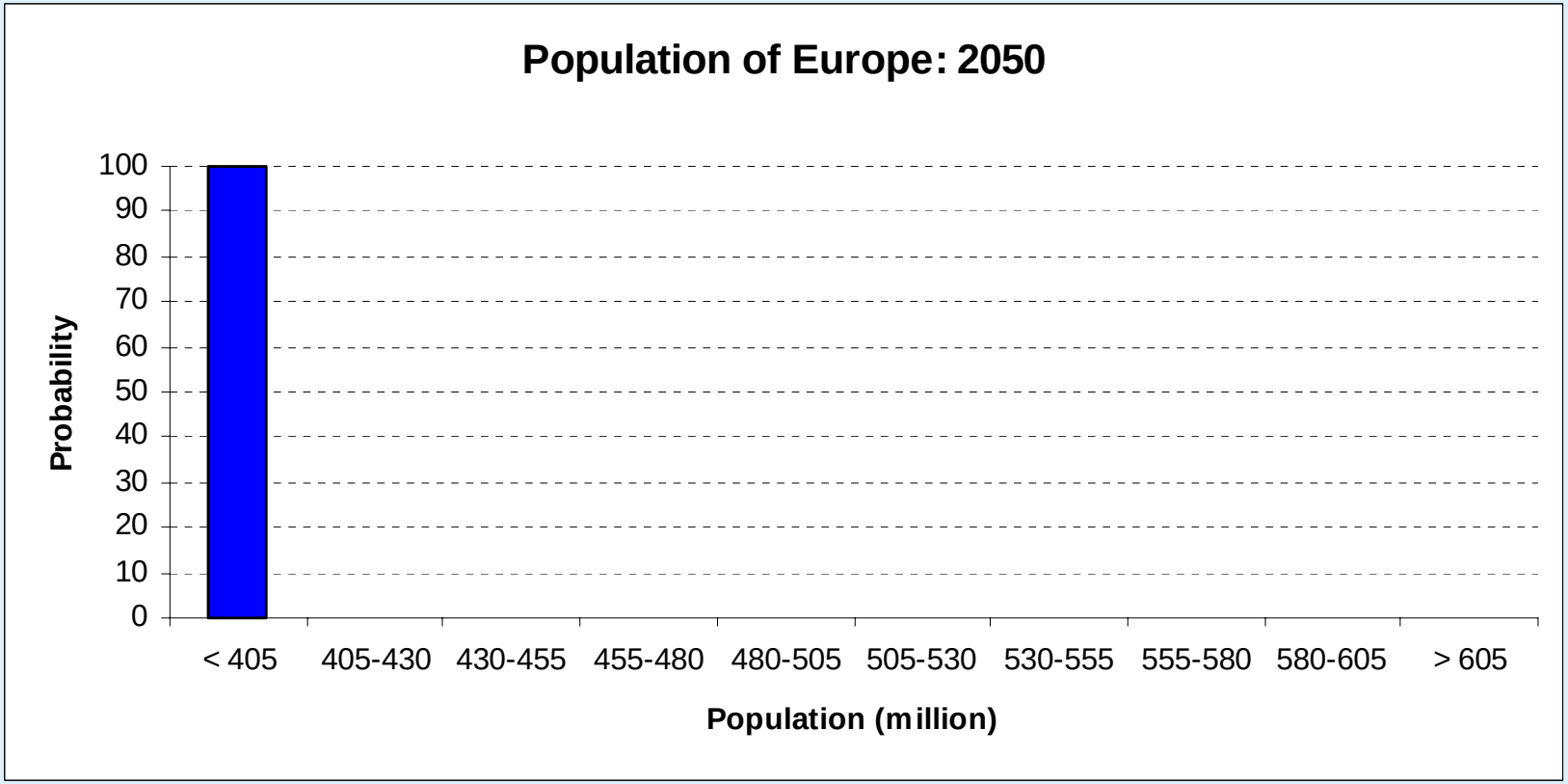
Sample size (ALTER-Net): 32

Sample size (AVEC 2): 36

Sample size (AVEC 1): 46

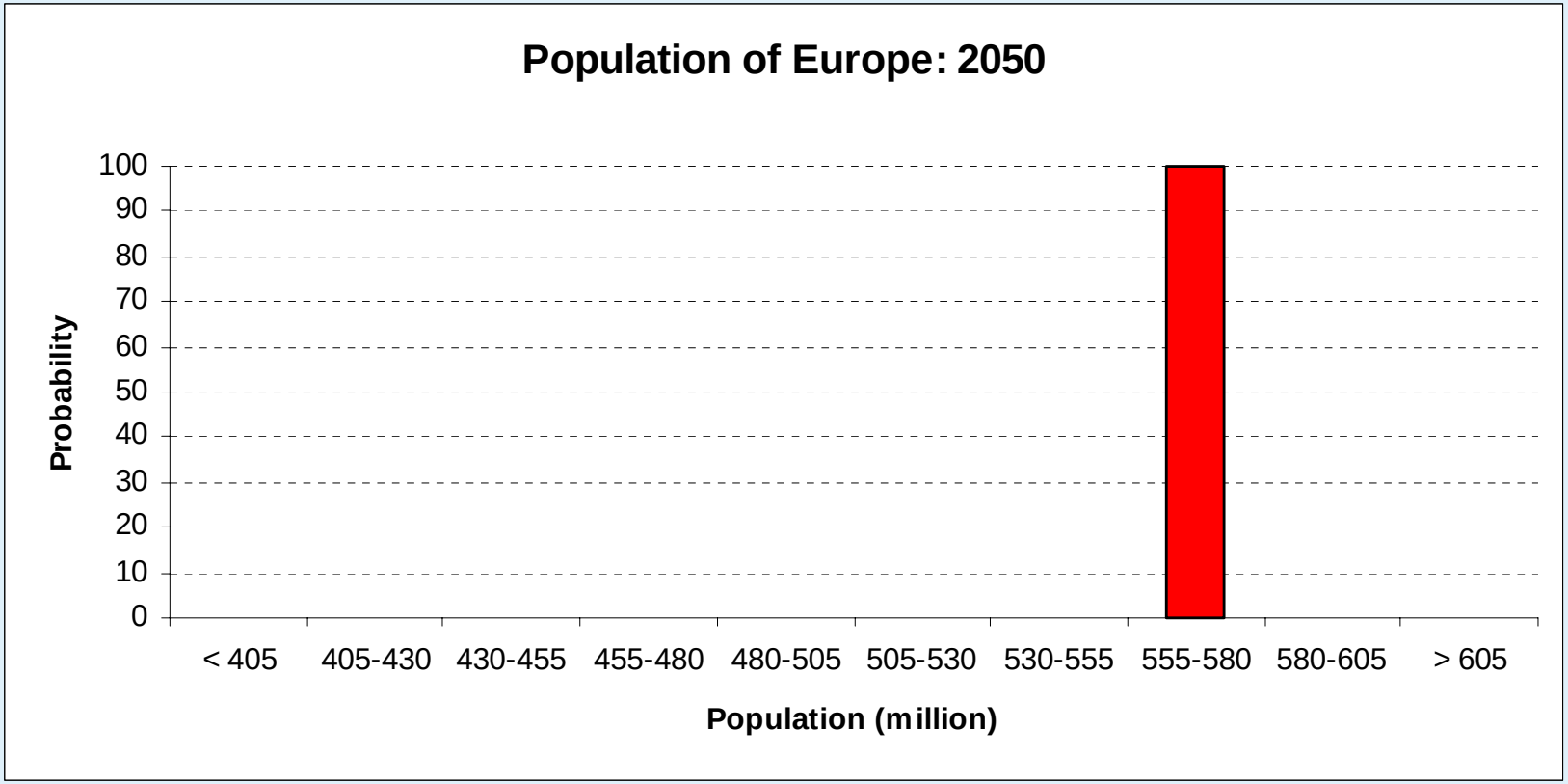
SYKE

Tony Blair model (ALTER-Net)



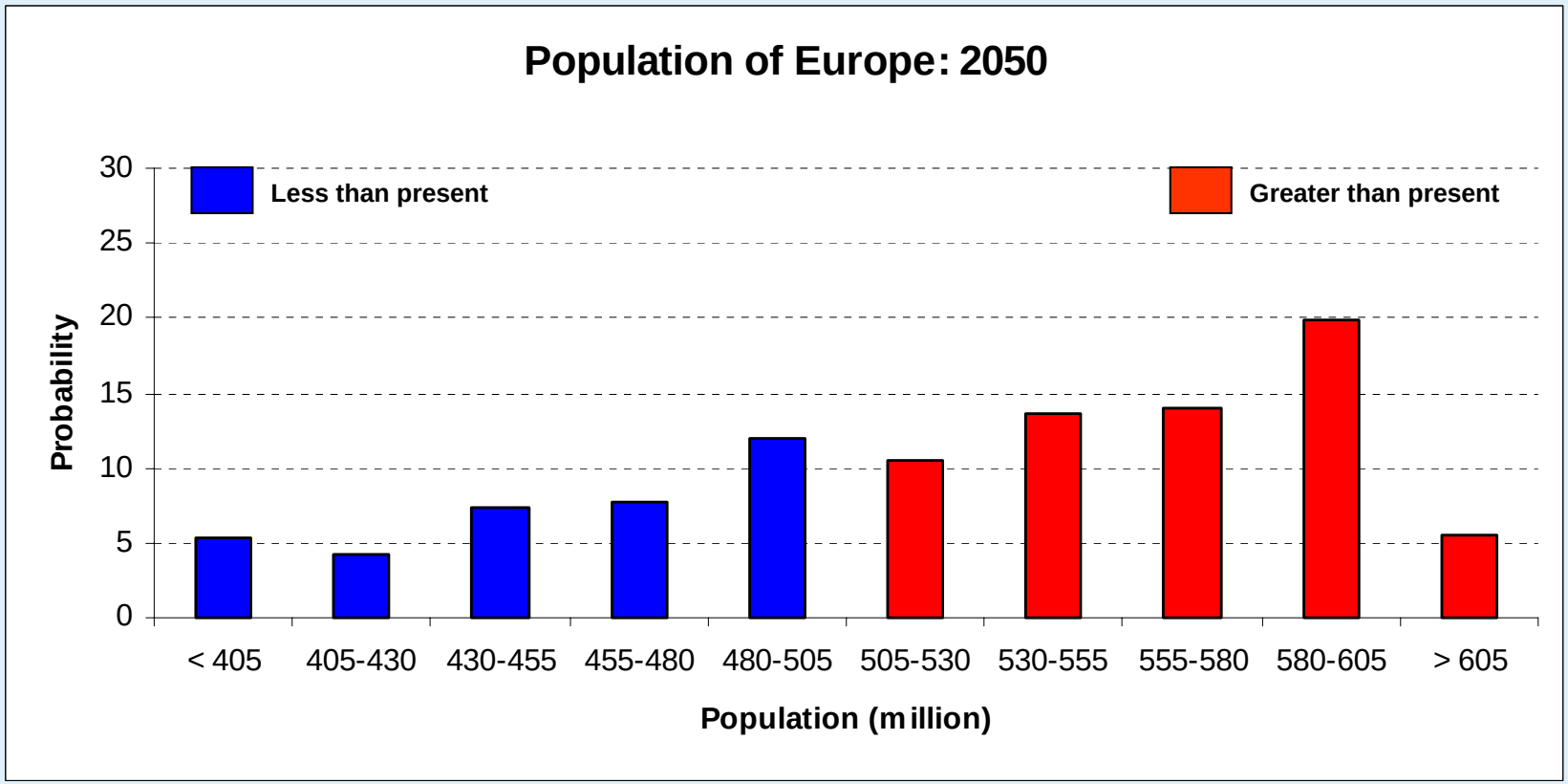
SYKE

Tony Blair's wife? (ALTER-Net)

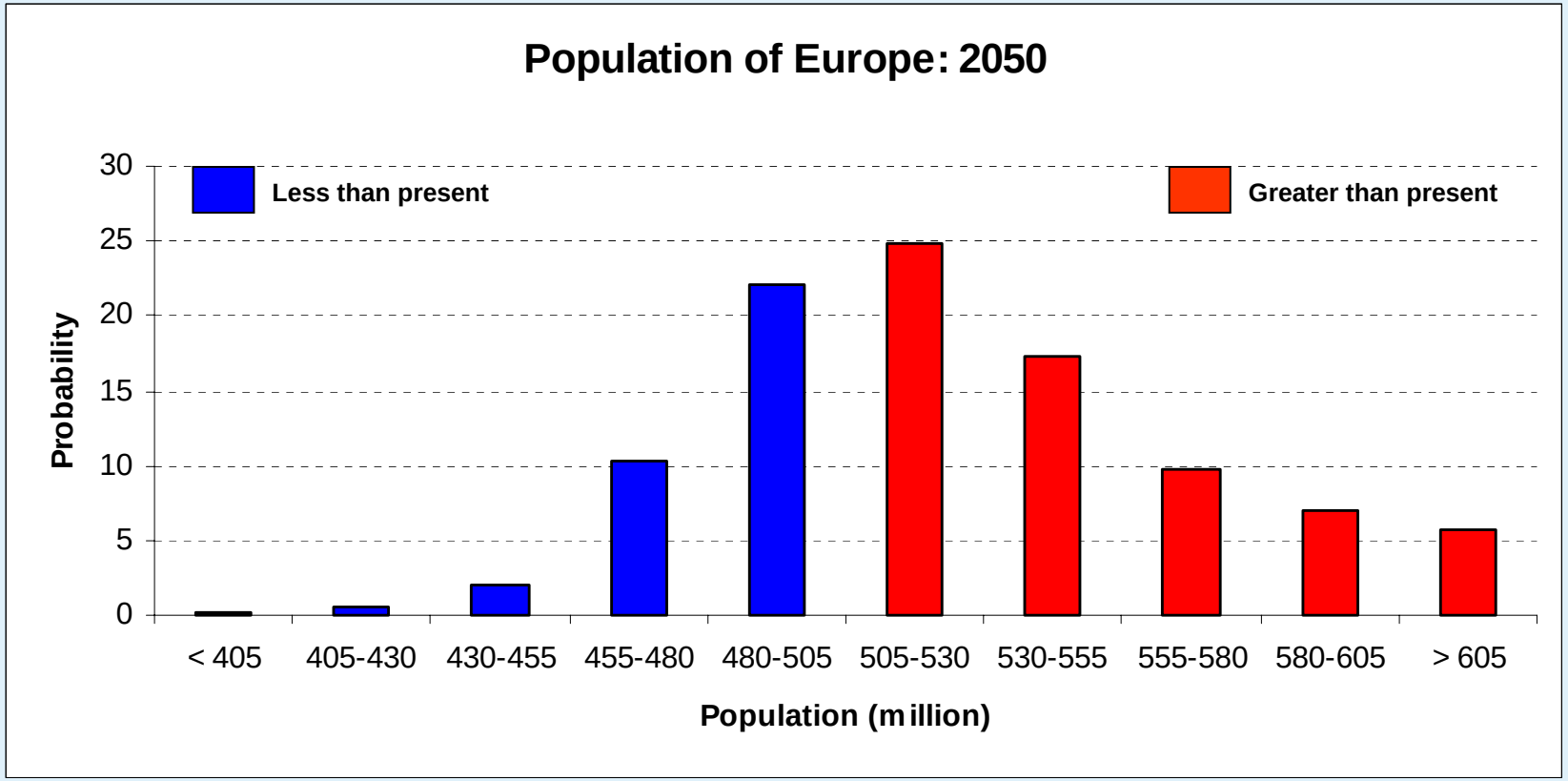


SYKE

SRES B2 A1, B1 A2



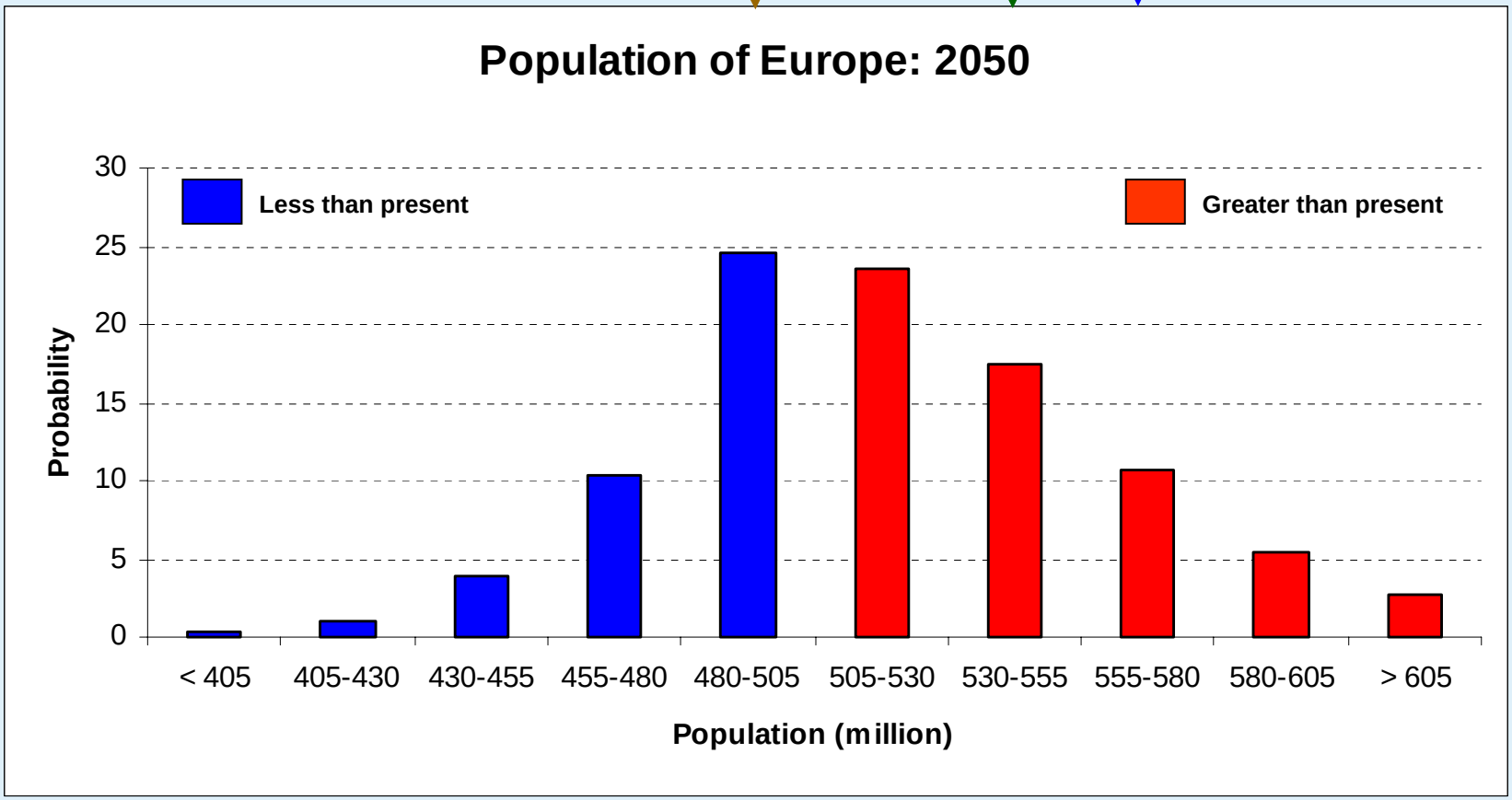
SRES B2 A1, B1 A2



AVEC 2

SYKE

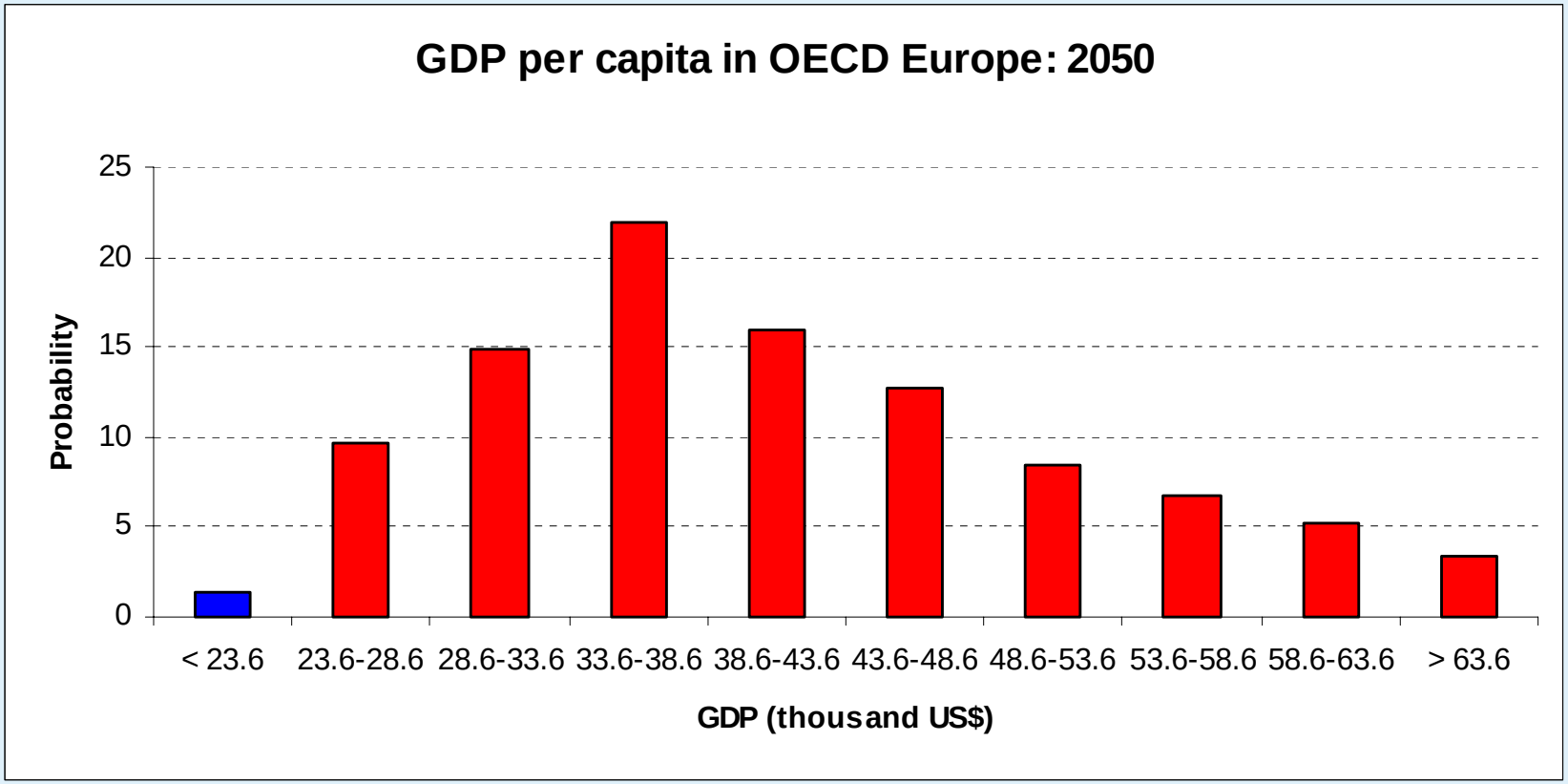
SRES B2 A1, B1 A2



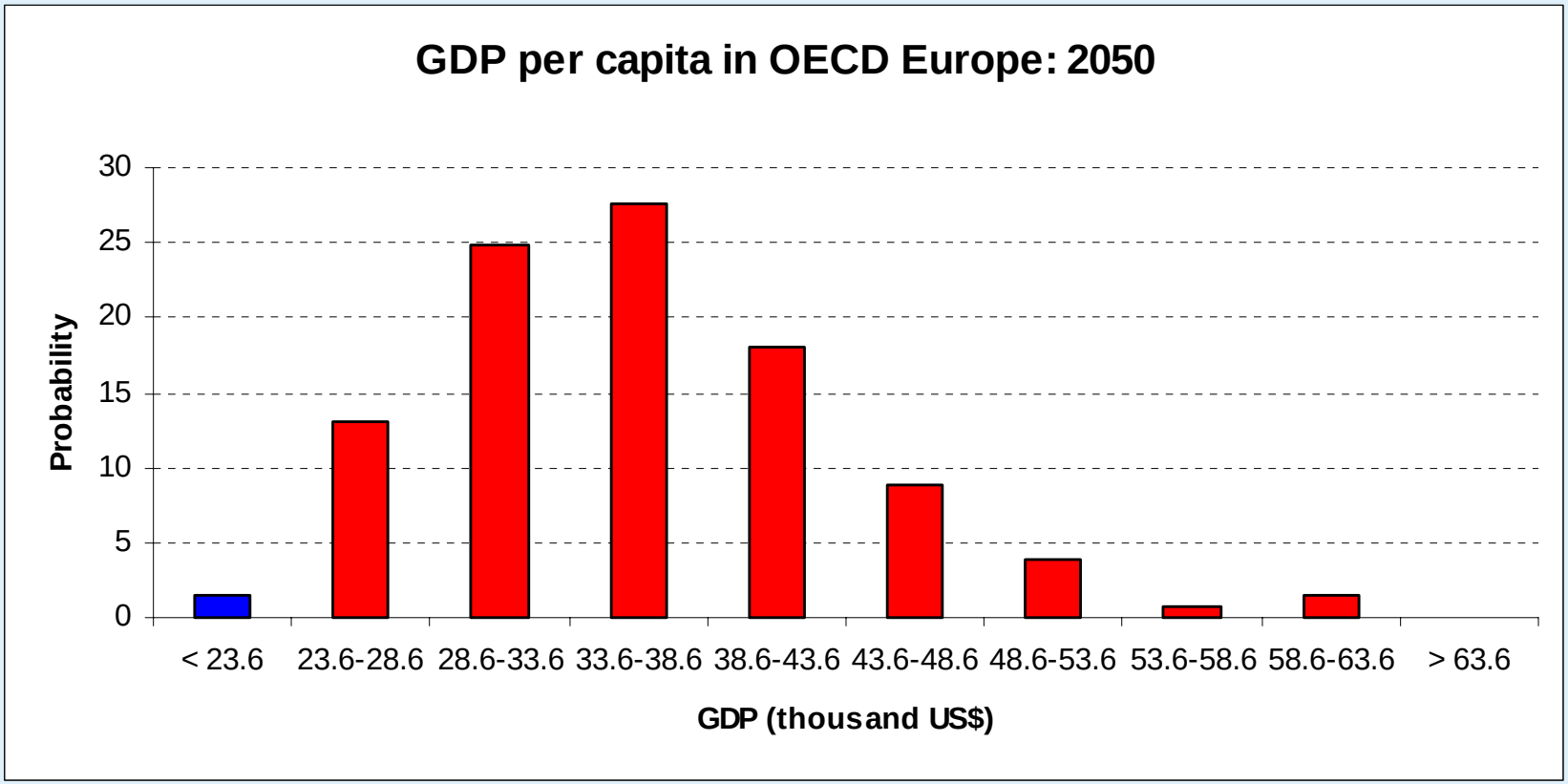
AVEC 1

SYKE

SRES A2 B2 B1 A1



SRES A2 B2 B1 A1



AVEC 2

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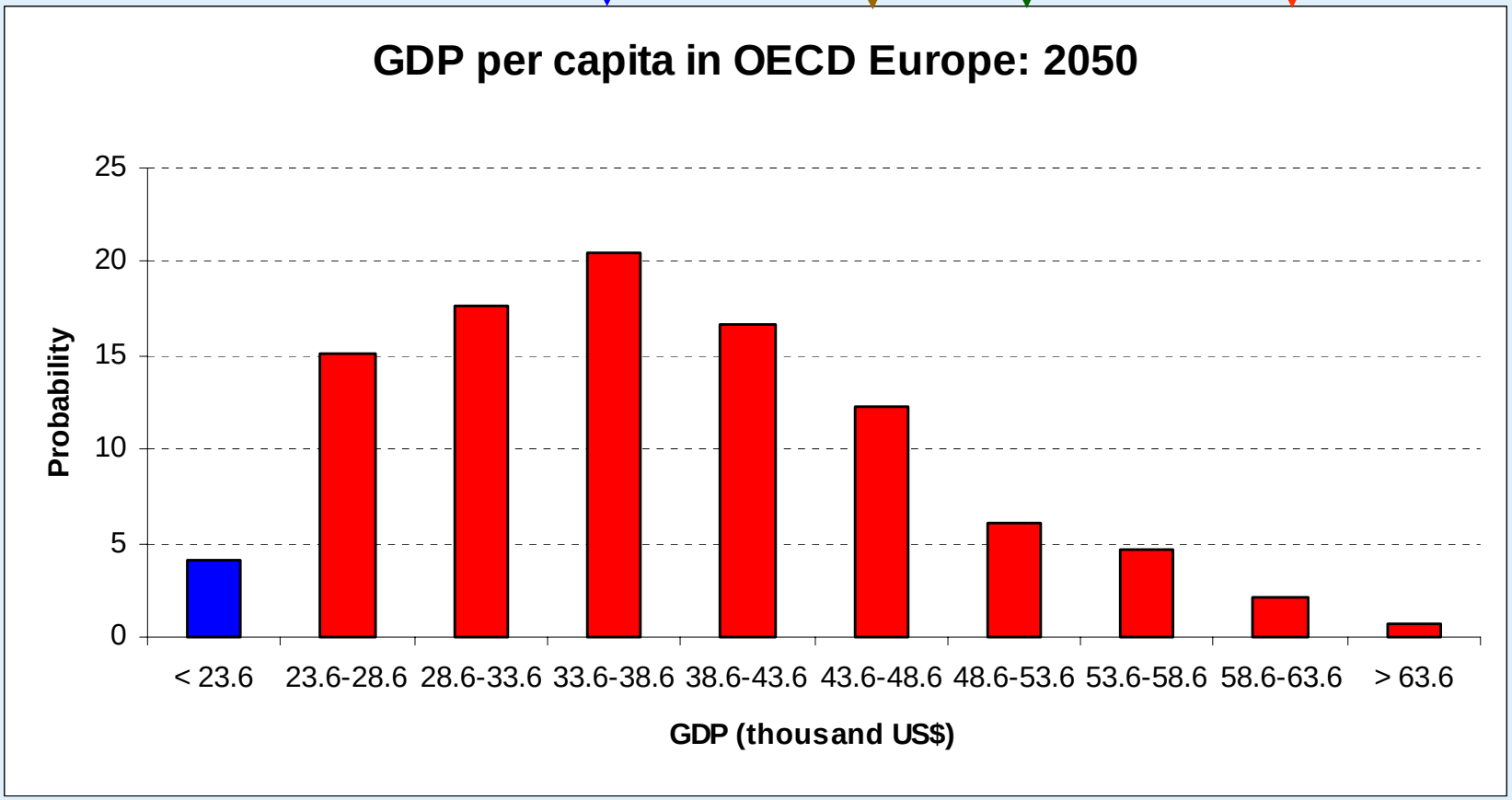
SYKE

SRES A2 B2 B1 A1



AVEC 1

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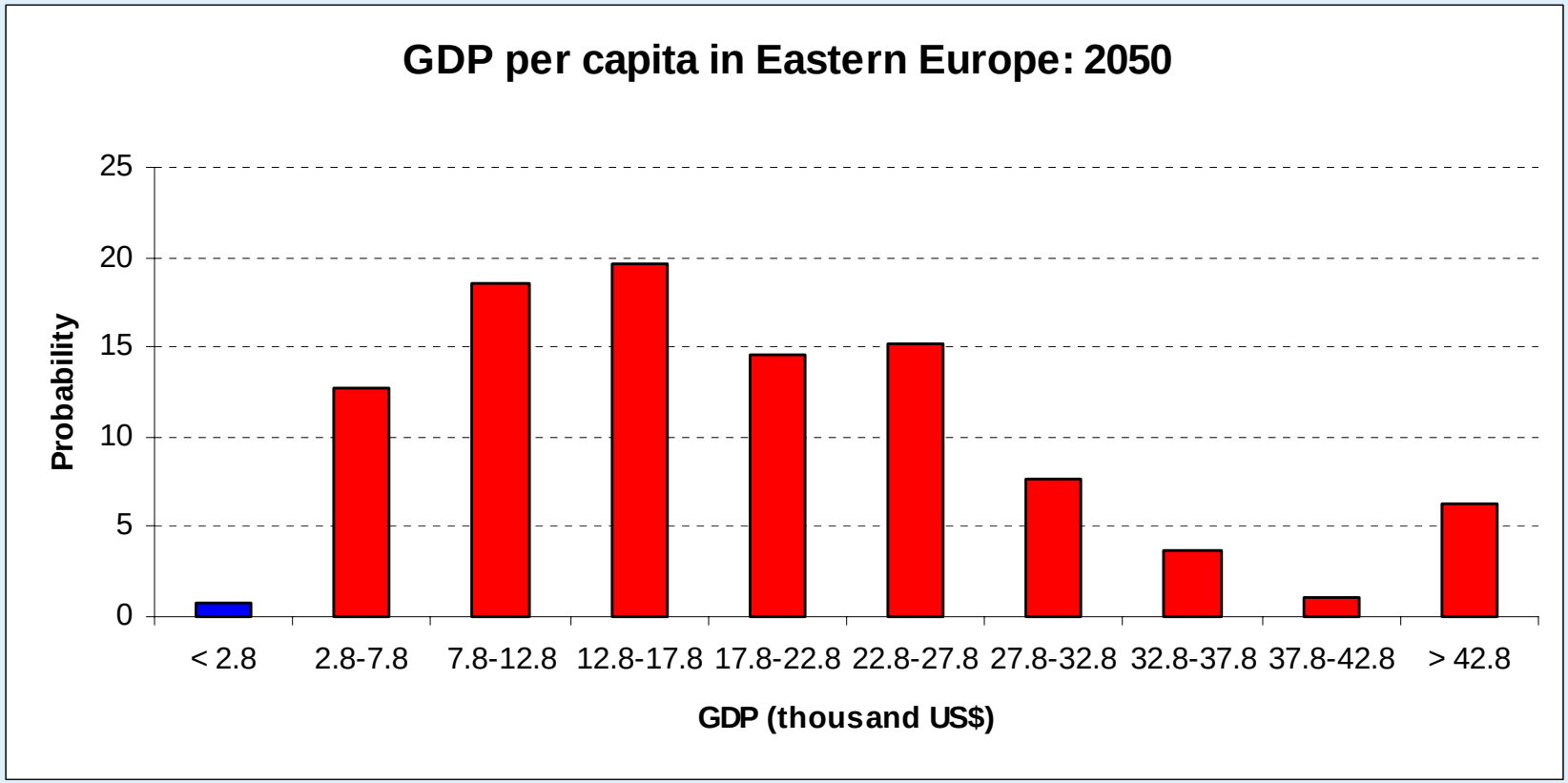
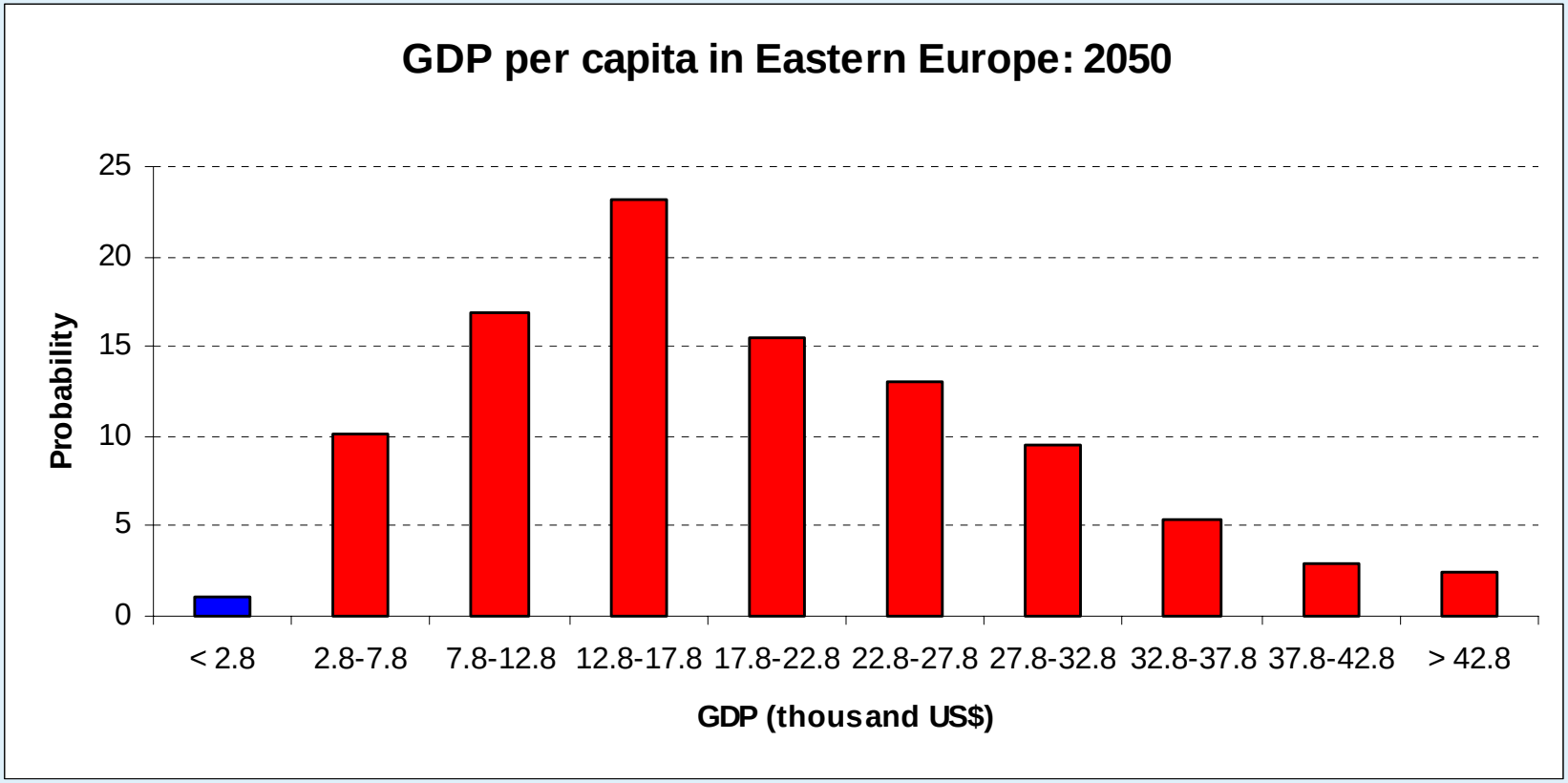
SYKE

SRES A2 B2 B1 A1



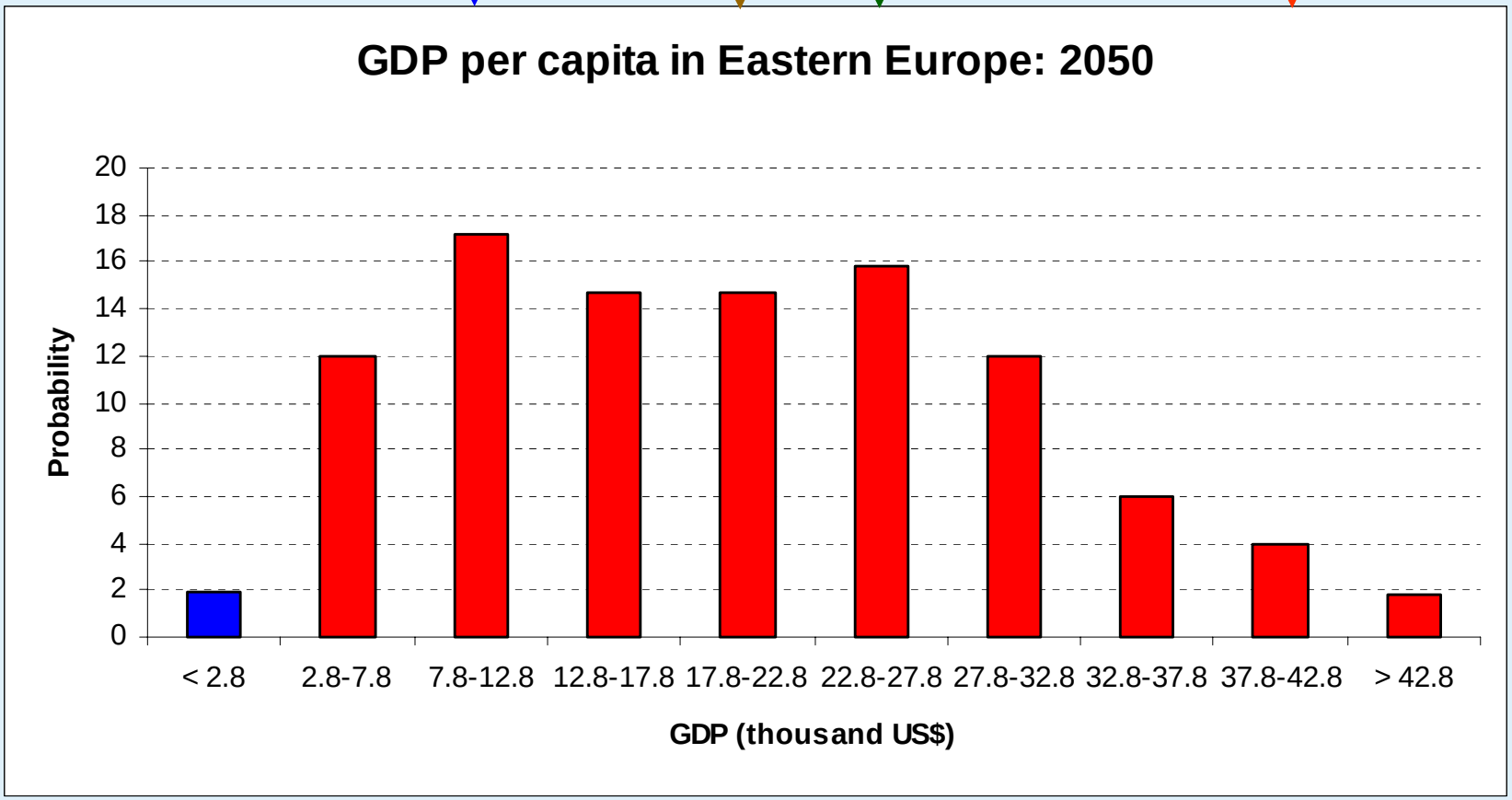
SRES A2 B2 B1 A1



AVEC 2

SYKE

SRES A2 B2 B1 A1



AVEC 1

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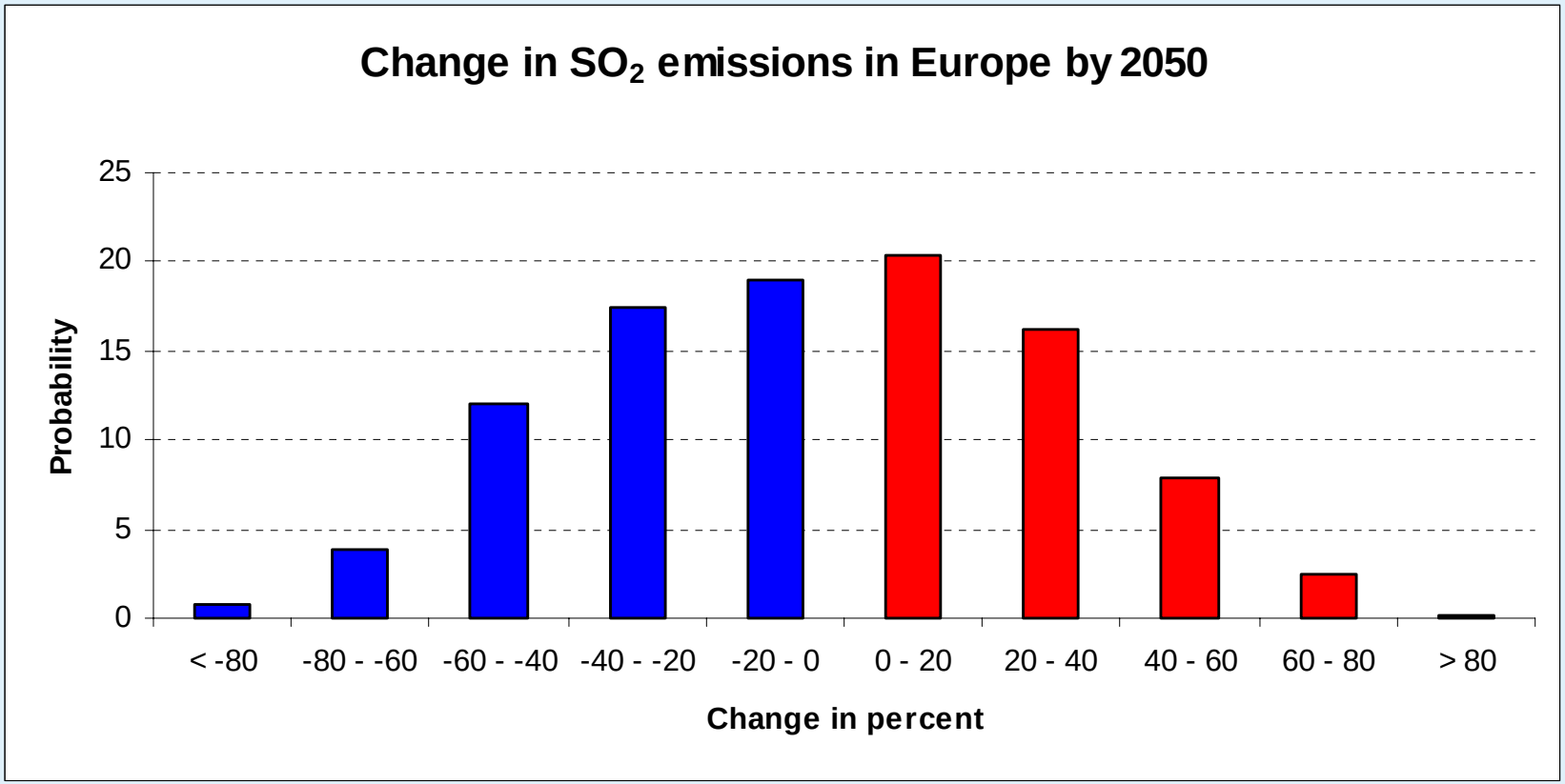
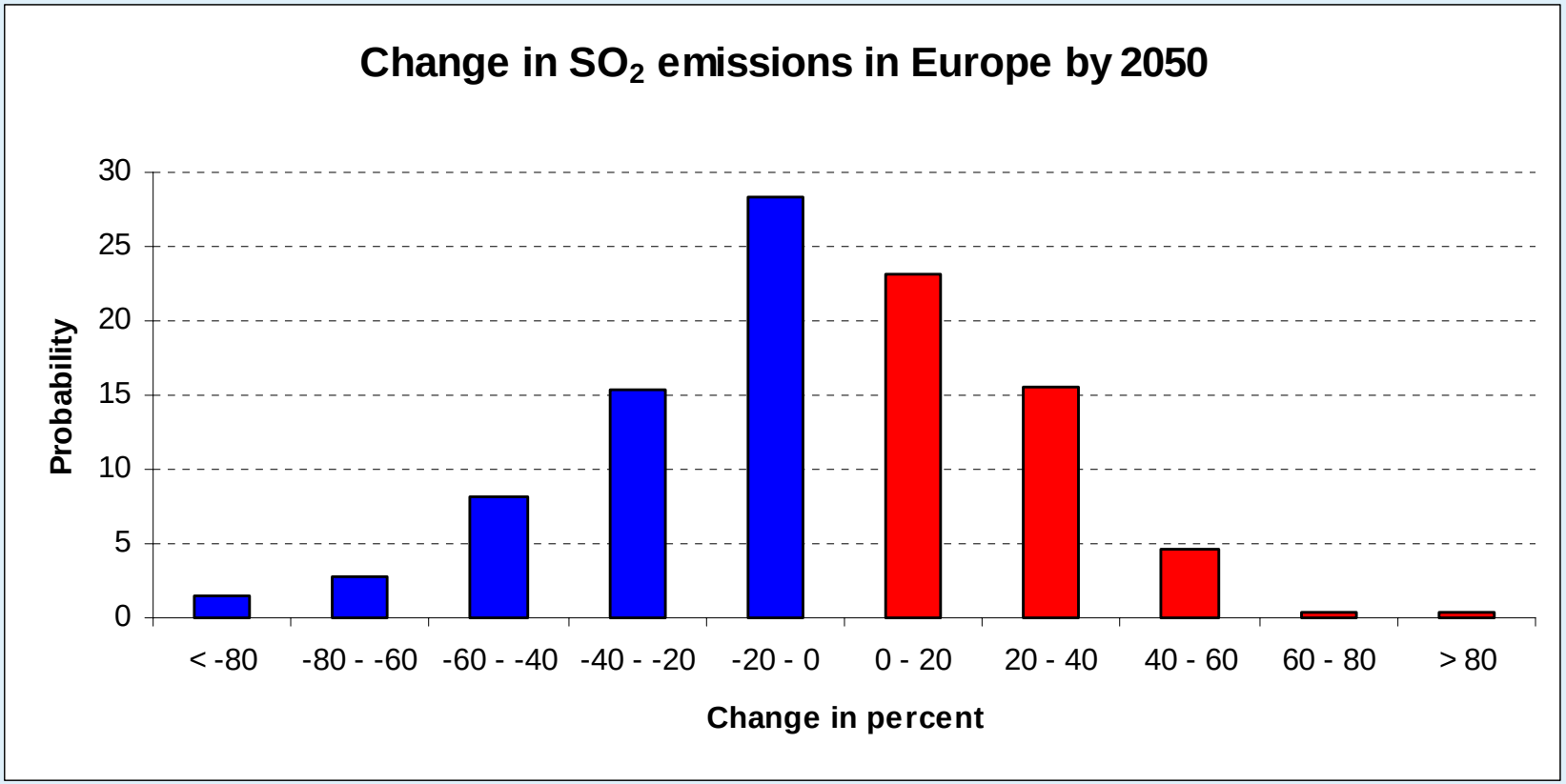
SYKE


Change in SO_2 emissions in Europe by 2050
Probability
25
20
15
10
5
0
< -80
-80 - -60
-60 - -40
-40 - -20
-20 - 0
0 - 20
20 - 40
40 - 60
60 - 80
> 80
Change in percent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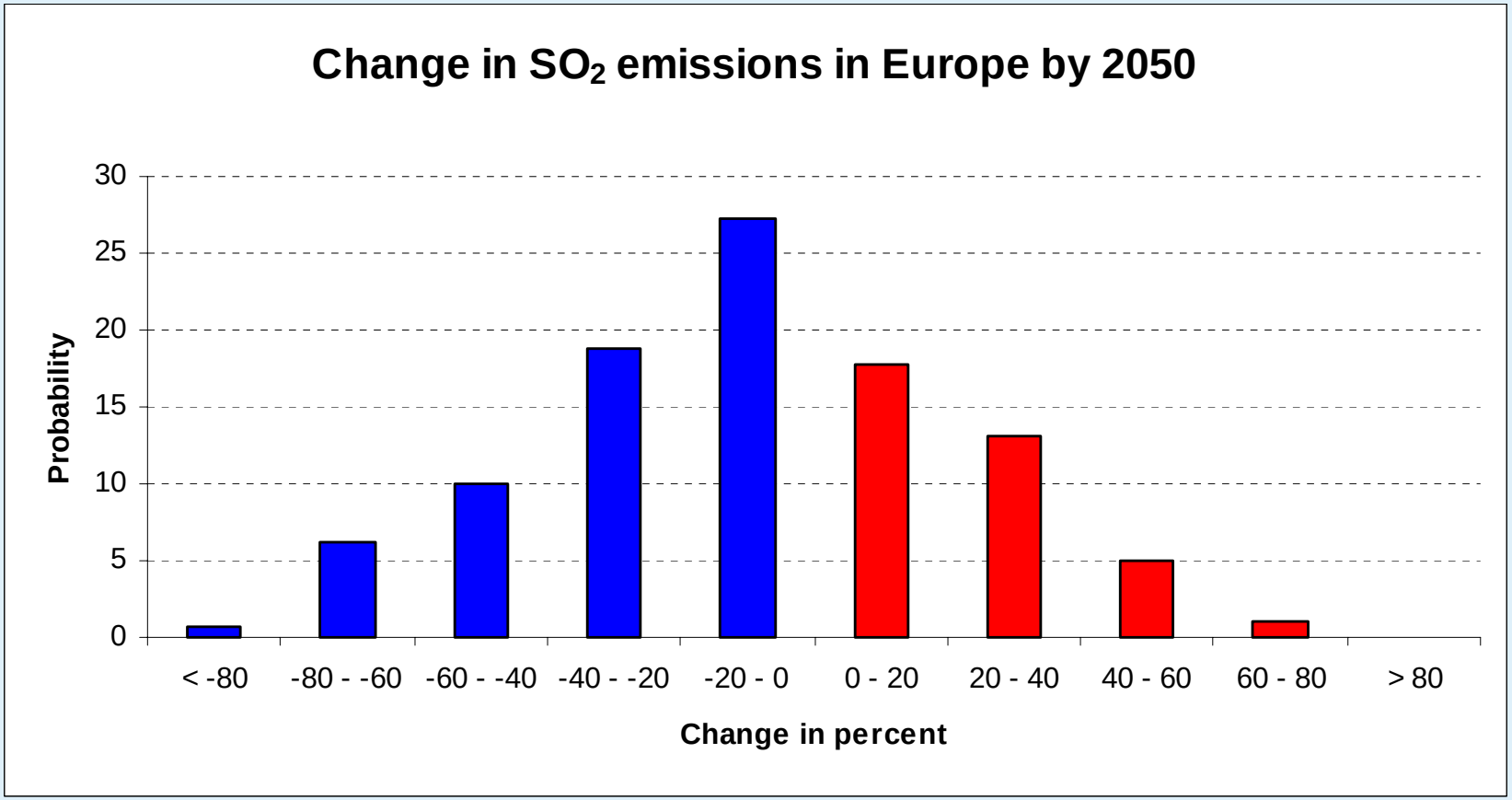
> 80
Change in percent

AVEC 2

SYKE


Change in SO_2 emissions in Europe by 2050
Probability
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0
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-80 - -60
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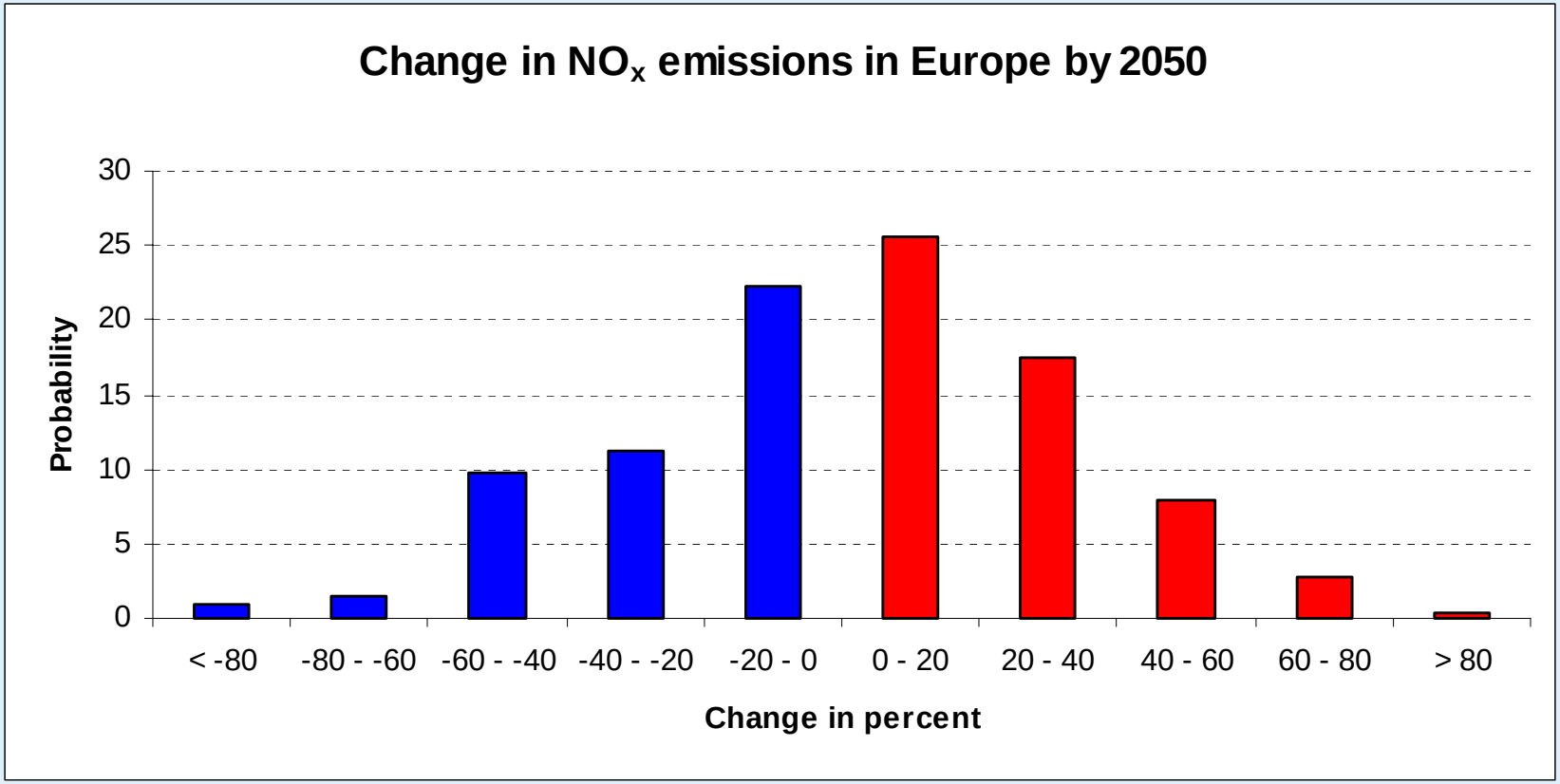
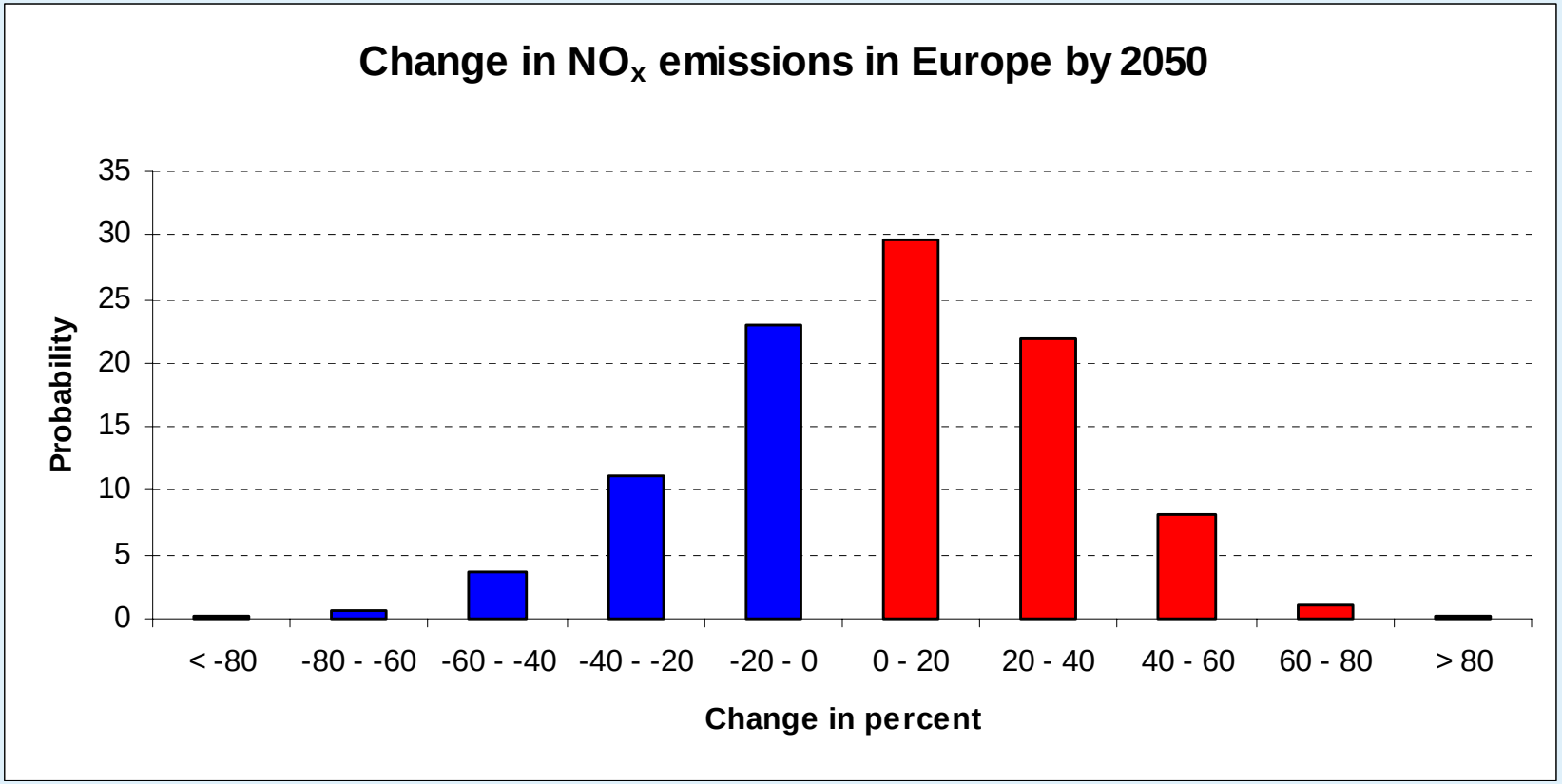
20 - 40
40 - 60
60 - 80
> 80
Change in percent

AVEC 1

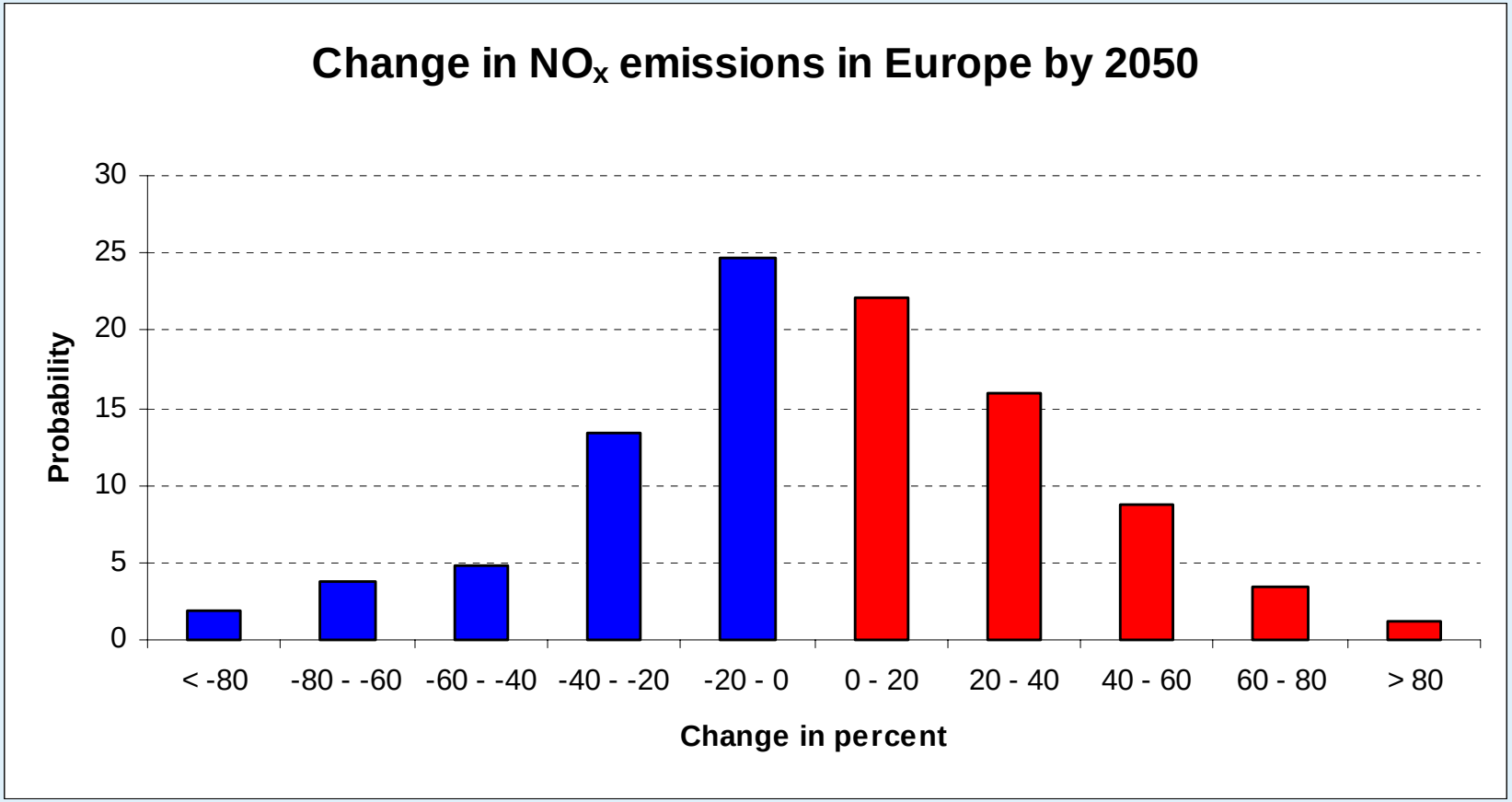
SYKE


Change in NO_x emissions in Europe by 2050
Probability
30
25
20
15
10
5
0
< -80
-80 - -60
-60 - -40
-40 - -20
-20 - 0
0 - 20
20 - 40
40 - 60
60 - 80
> 80
Change in percent


Change in NO_x emissions in Europe by 2050
Probability
35
30
25
20
15
10
5
0
< -80
-80 - -60
-60 - -40
-40 - -20
-20 - 0
0 - 20
20 - 40
40 - 60
60 - 80
> 80
Change in percent

AVEC 2

SYKE

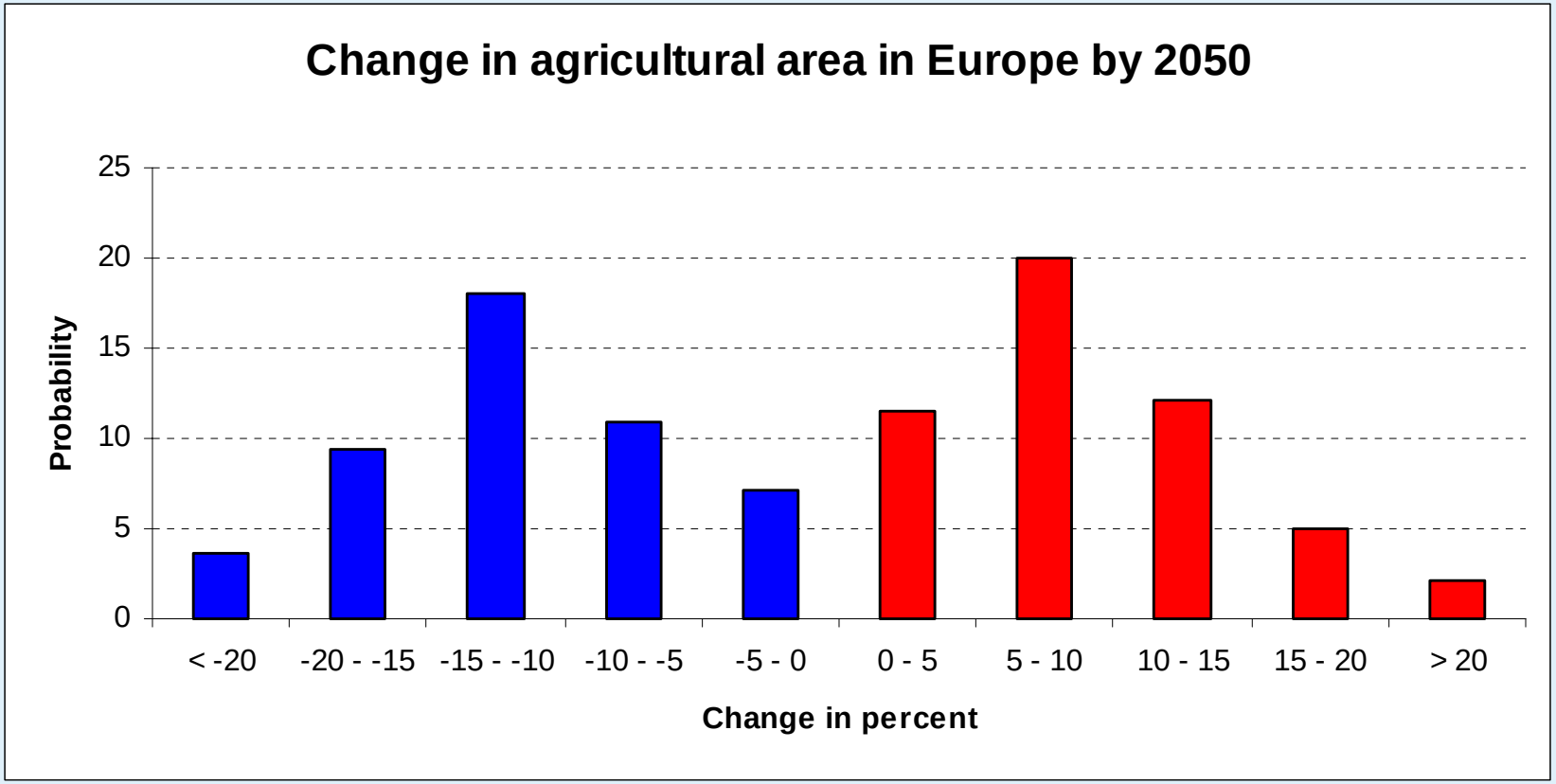


AVEC 1

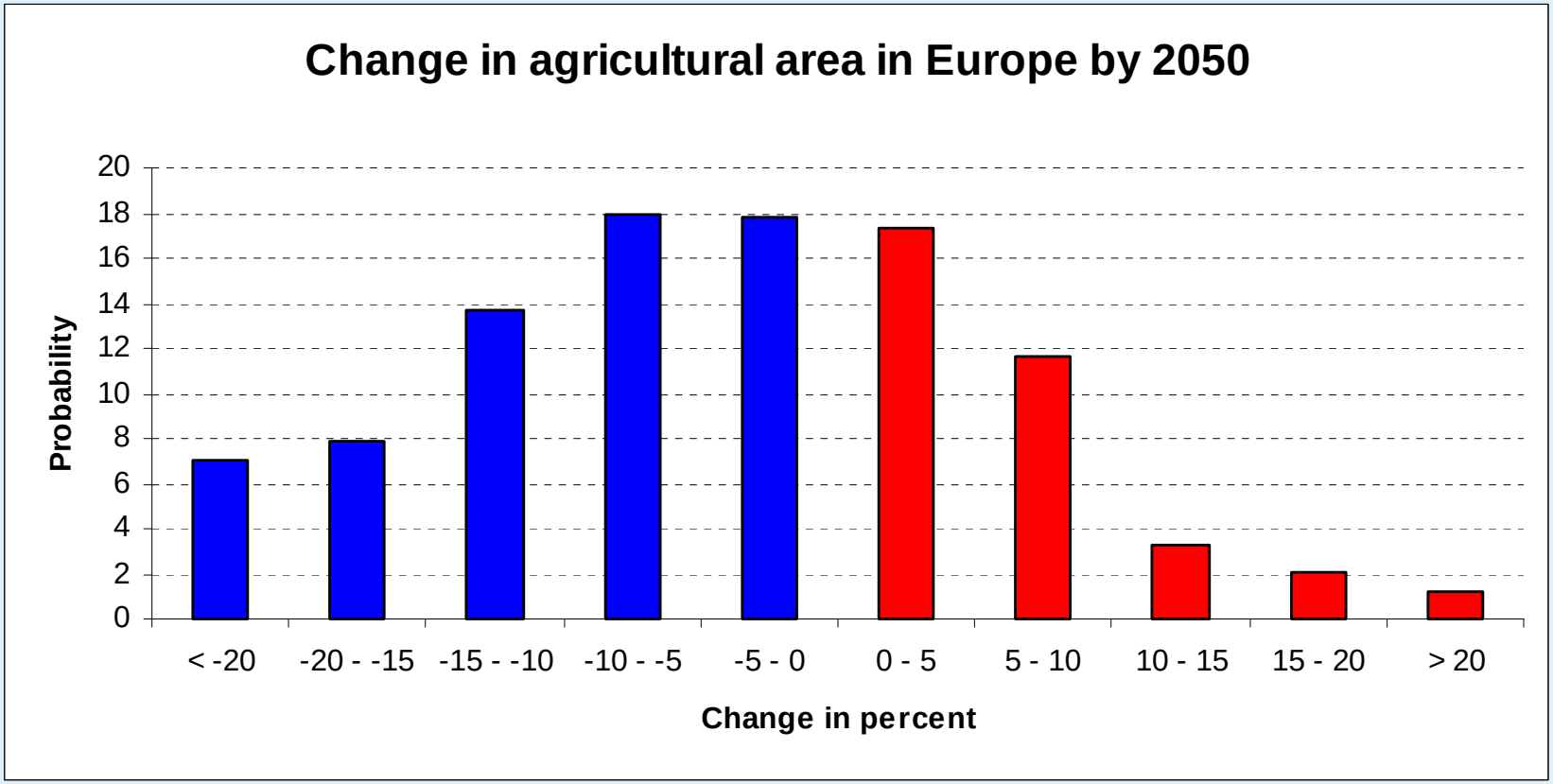
6.10.2006

SYKE

A1, A2 B1 B2 ATEAM



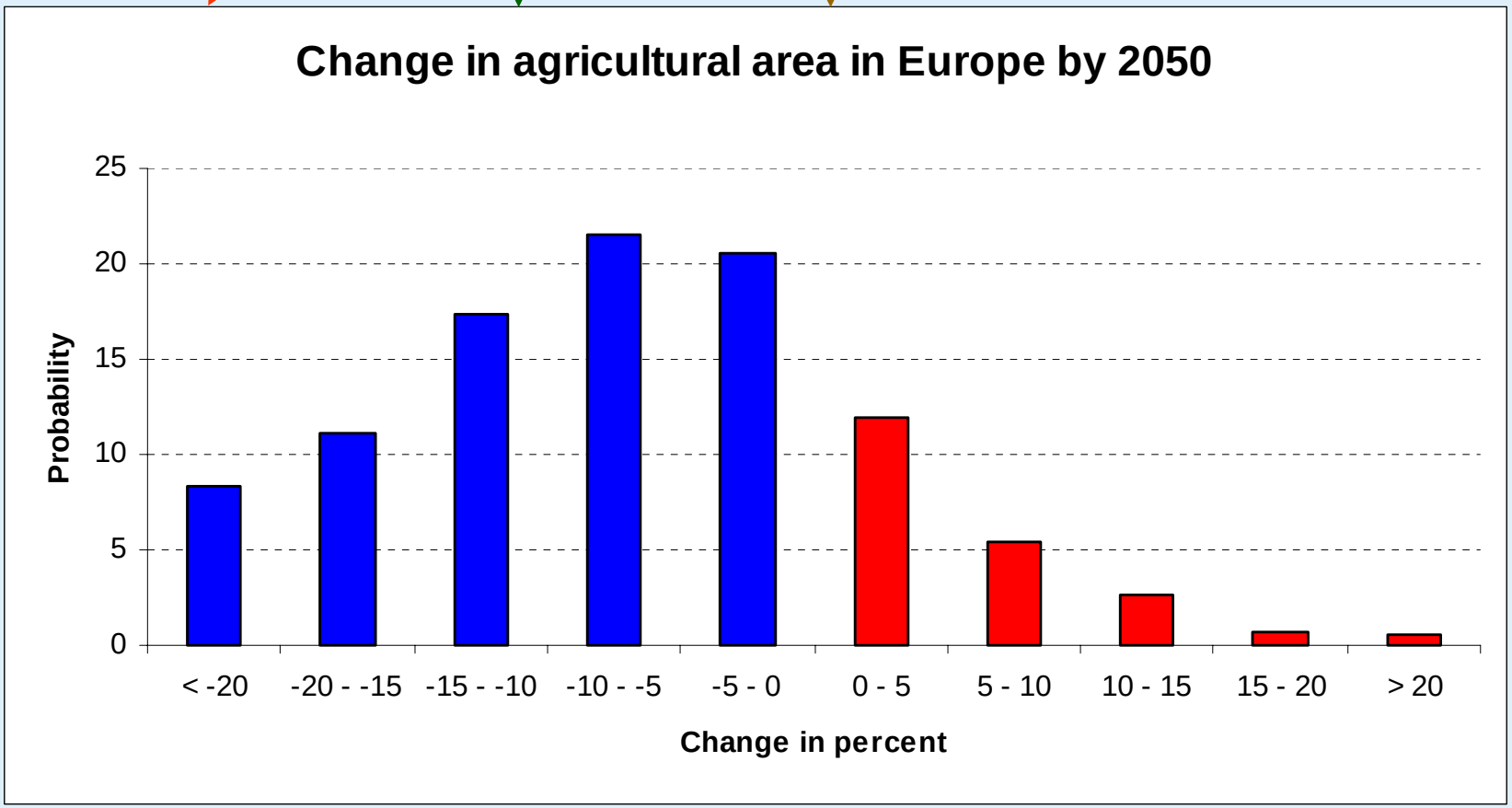
A1, A2 B1 B2 ATEAM



AVEC 2

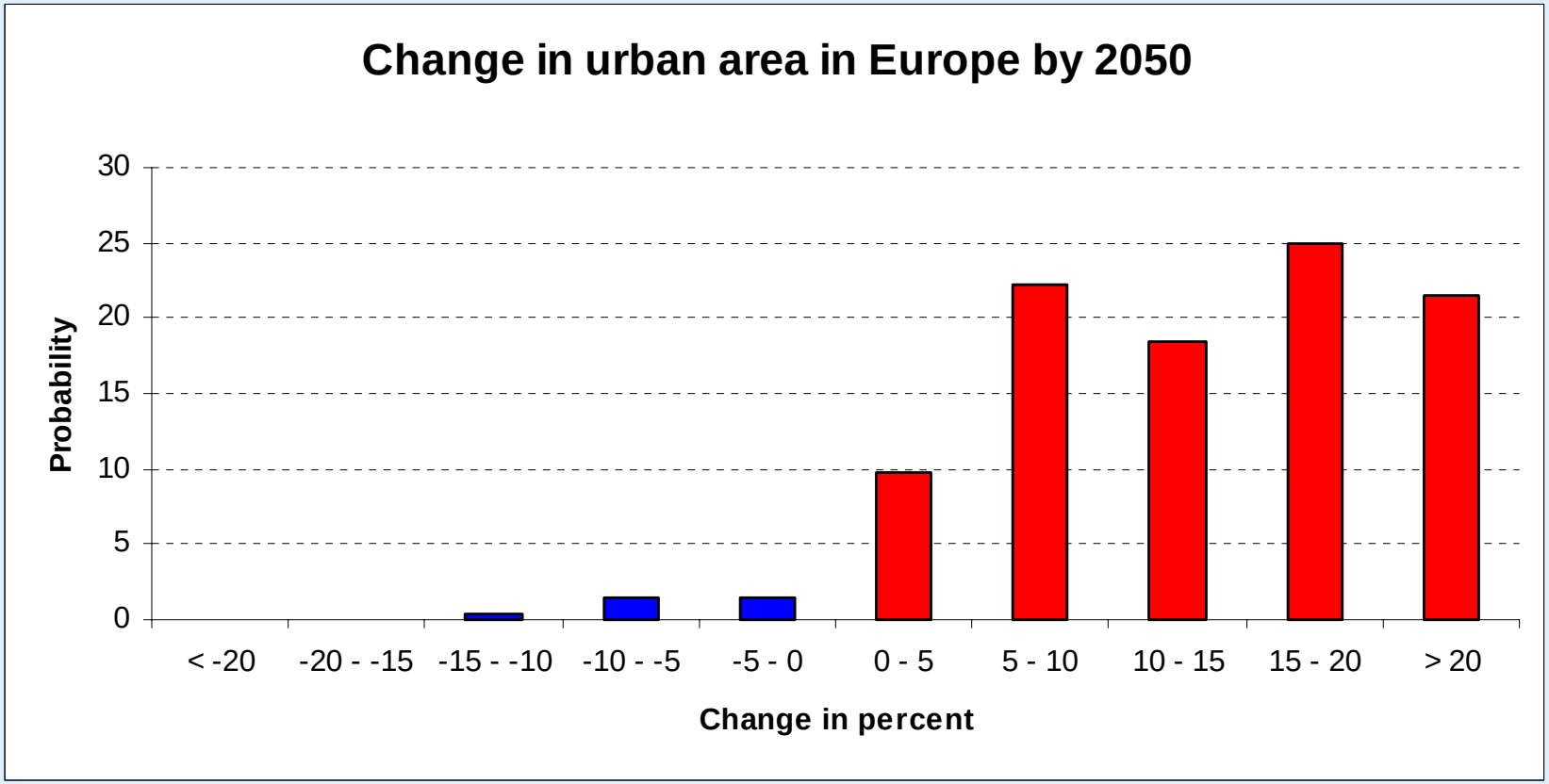
SYKE

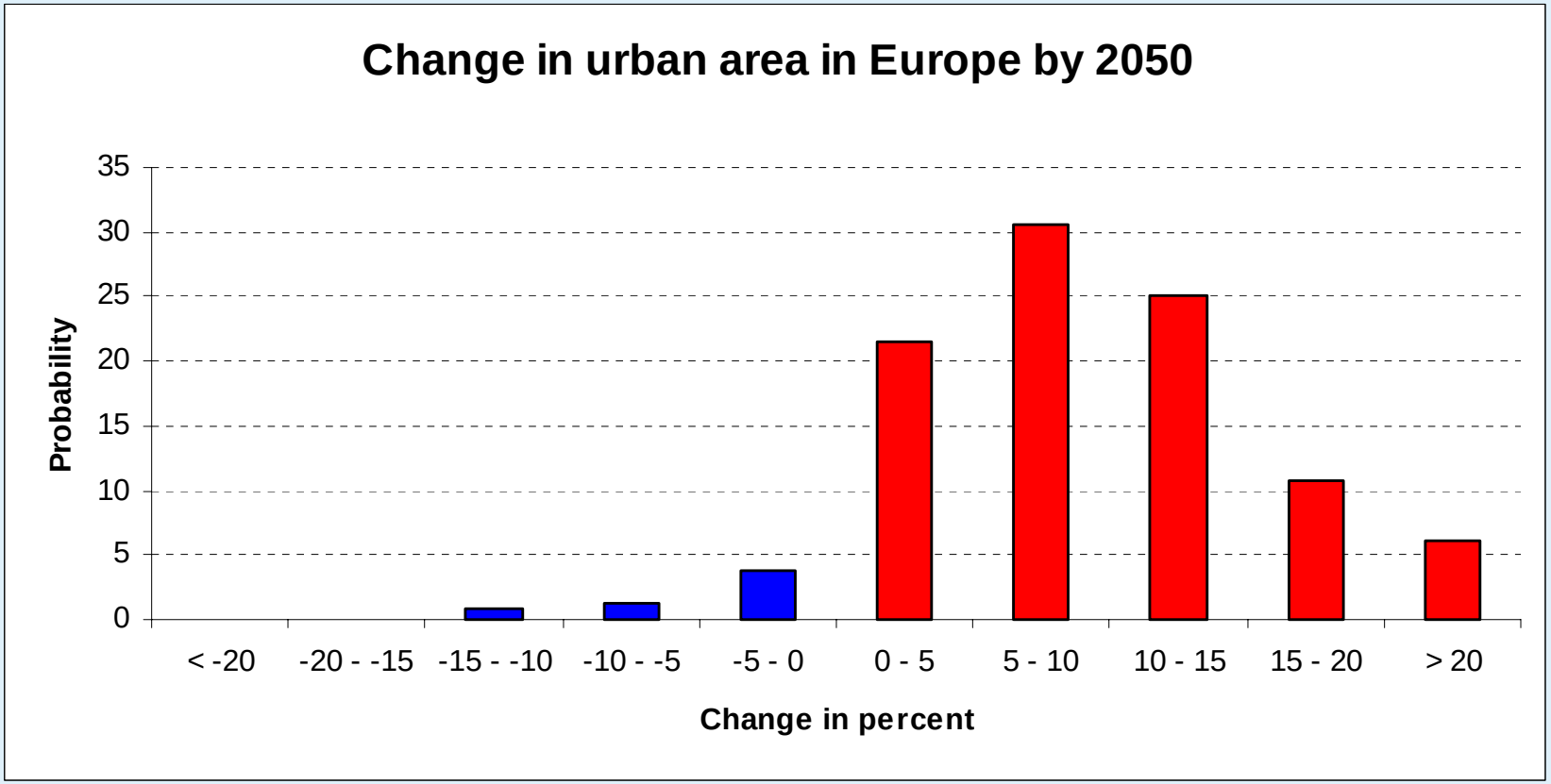
A1, A2 B1 B2 ATEAM



AVEC 1

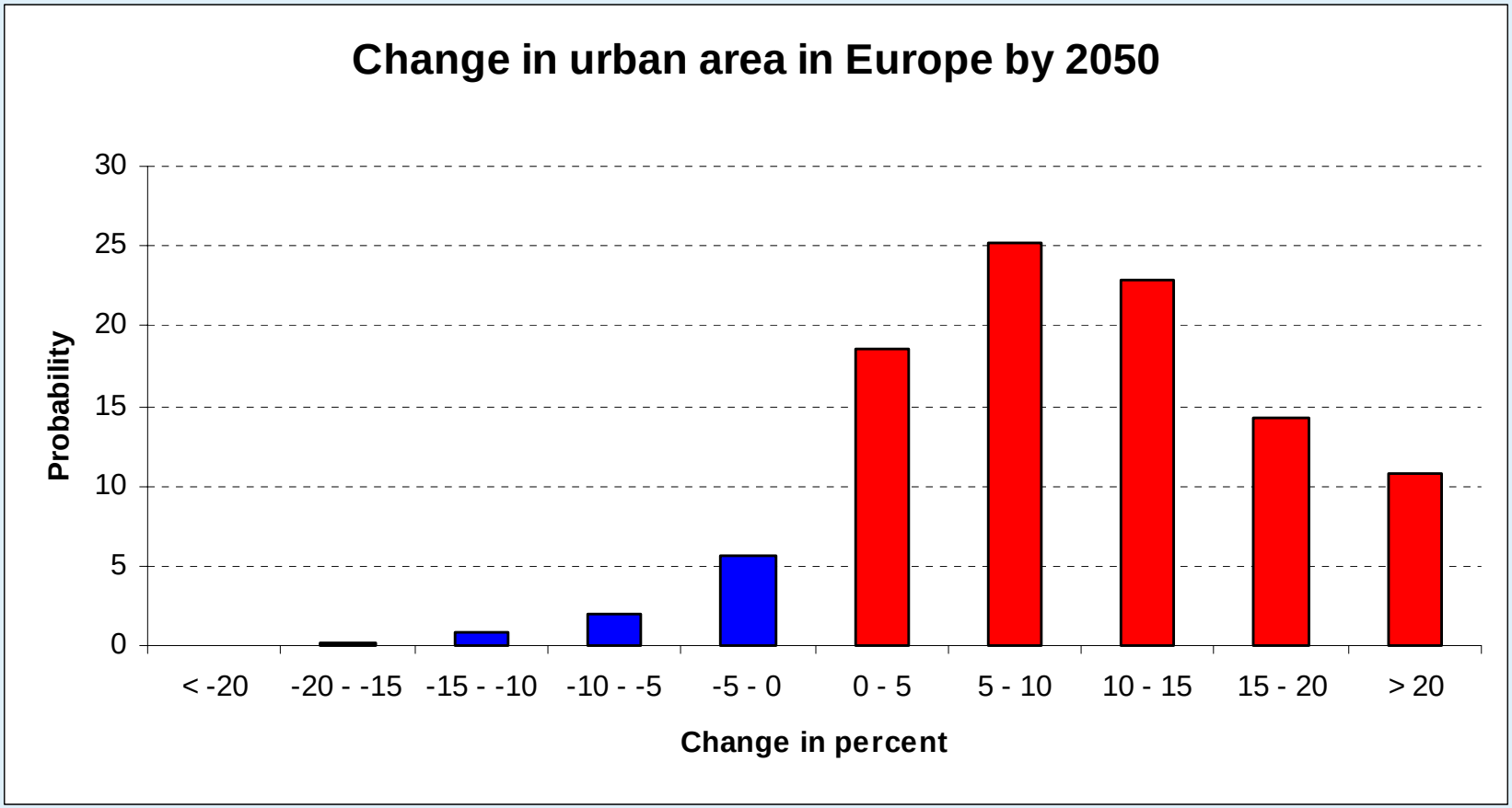
SYKE


Change in urban area in Europe by 2050
Probability
30
25
20
15
10
5
0
< -20
-20 - -15
-15 - -10
-10 - -5
-5 - 0
0 - 5
5 - 10
10 - 15
15 - 20
> 20
Change in percent


Change in urban area in Europe by 2050
Probability
35
30
25
20
15
10
5
0
< -20
-20 - -15
-15 - -10
-10 - -5
-5 - 0
0 - 5
5 - 10
10 - 15
15 - 20
> 20
Change in percent

AVEC 2

SYKE


Change in urban area in Europe by 2050
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10
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0
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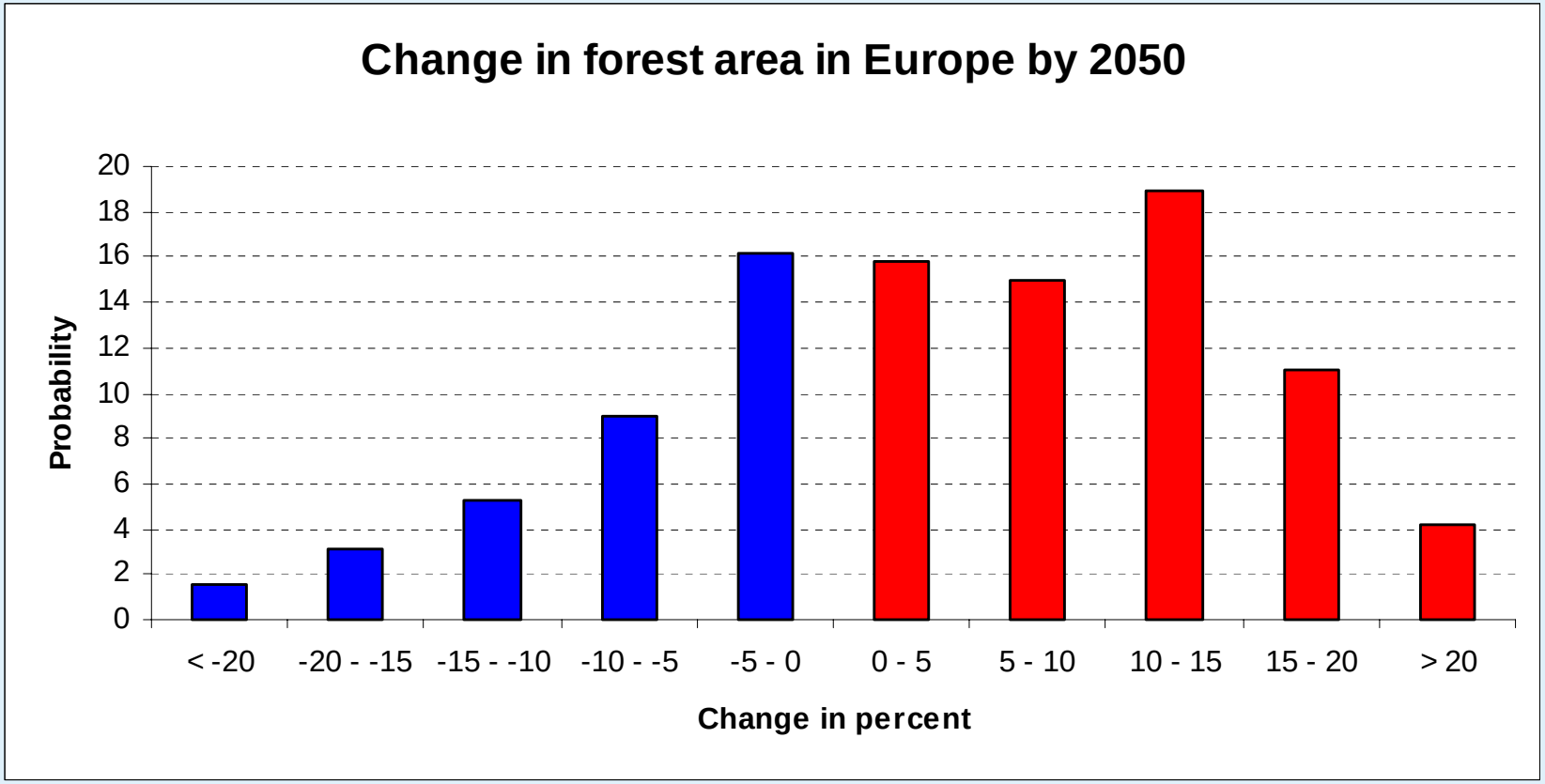
-20 - -15
-15 - -10
-10 - -5
-5 - 0
0 - 5
5 - 10
10 - 15
15 - 20
> 20
Change in percent

AVEC 1

SYKE

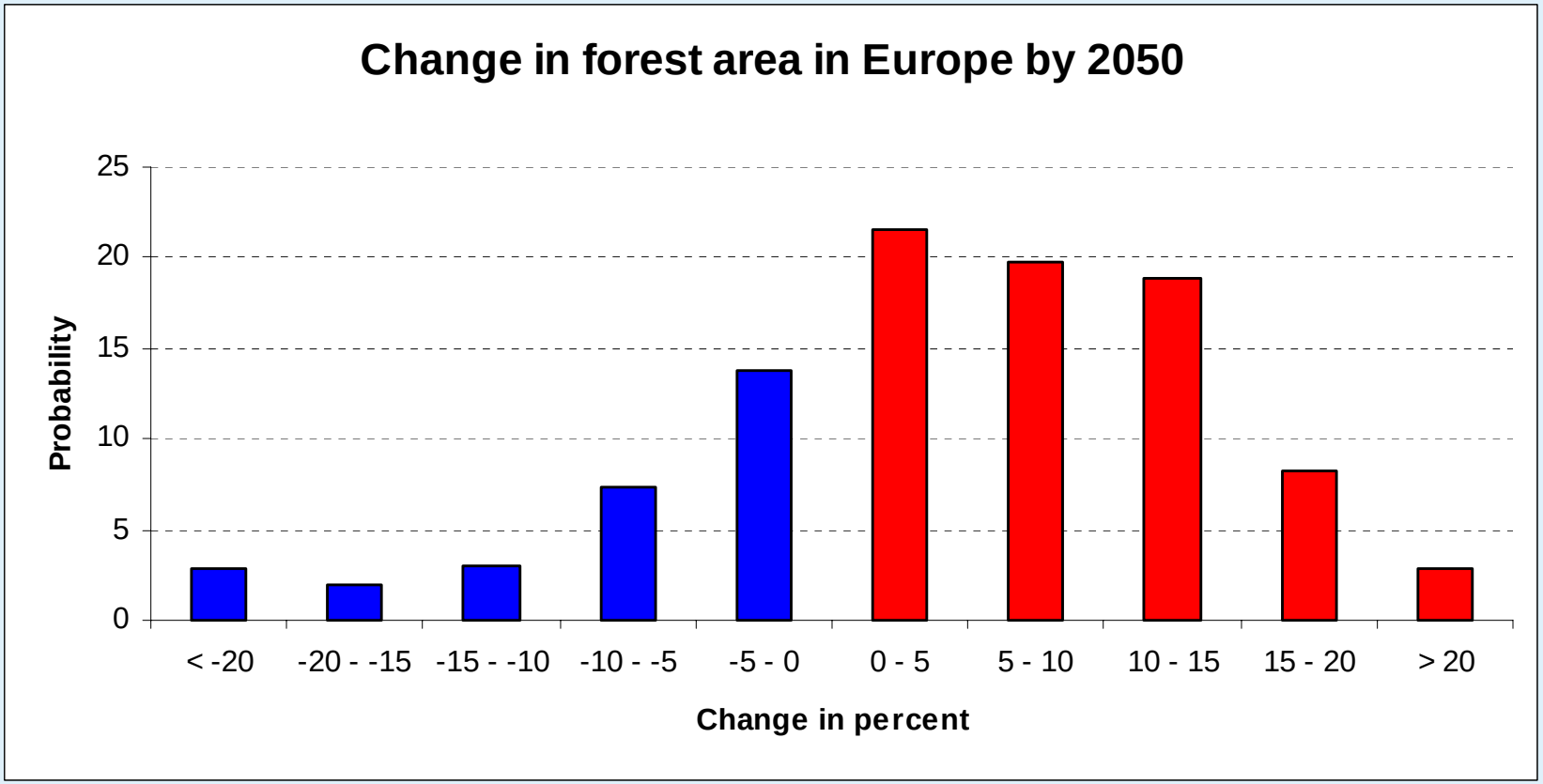
ATEAM

A1 A2, B1 B2



ATEAM

A1 A2, B1 B2

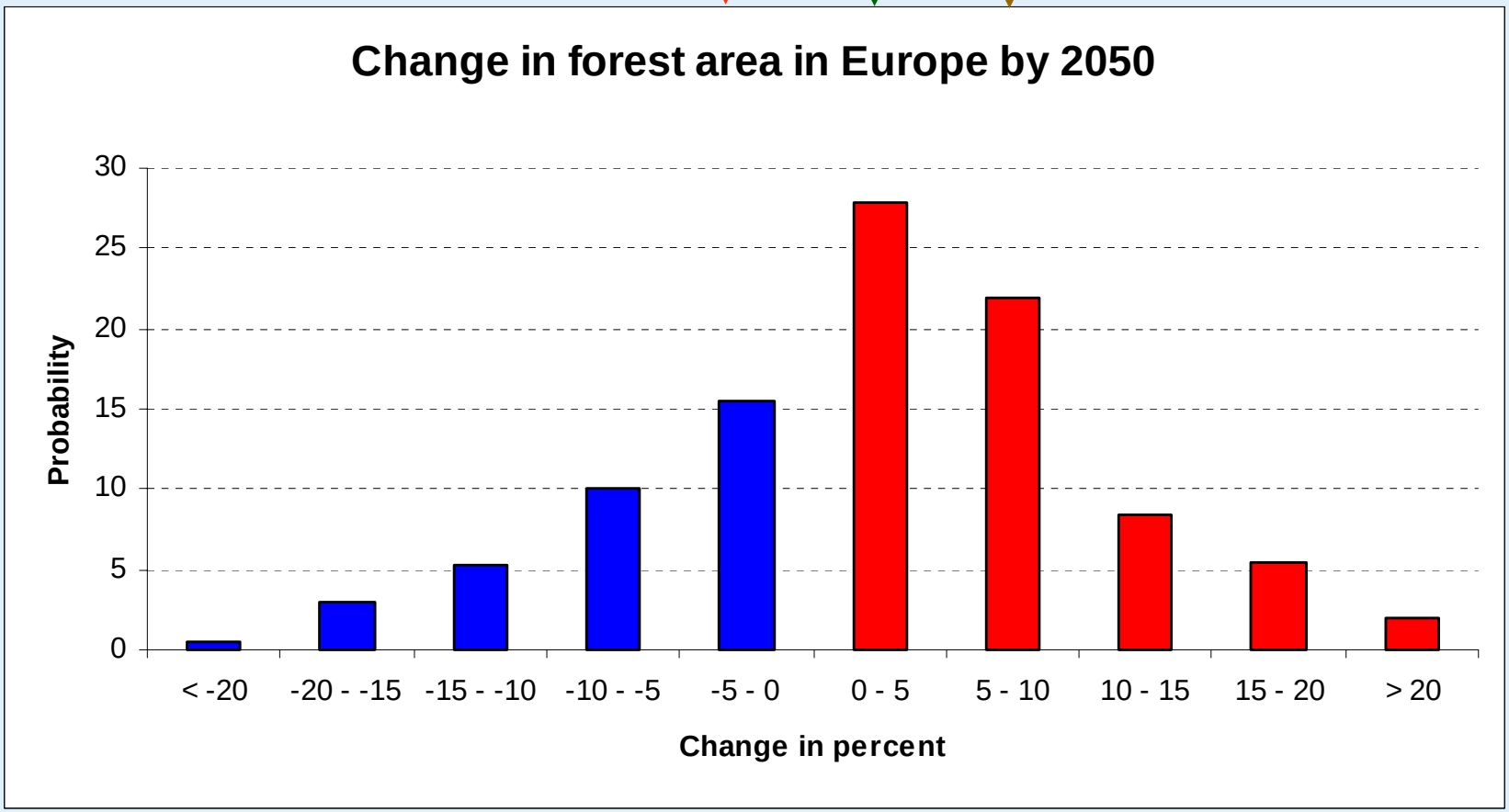


AVEC 2

SYKE

ATEAM

A1 A2, B1 B2



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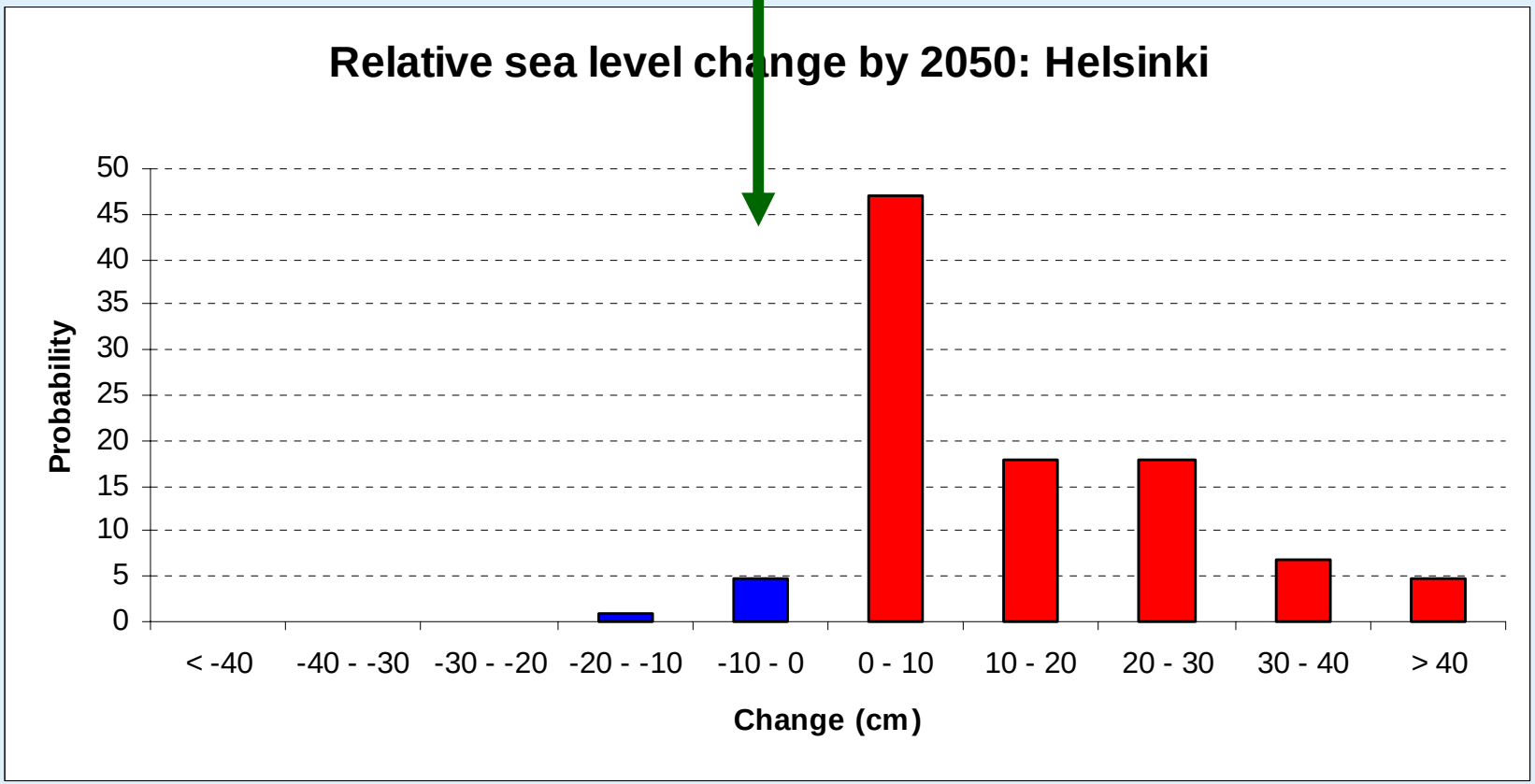
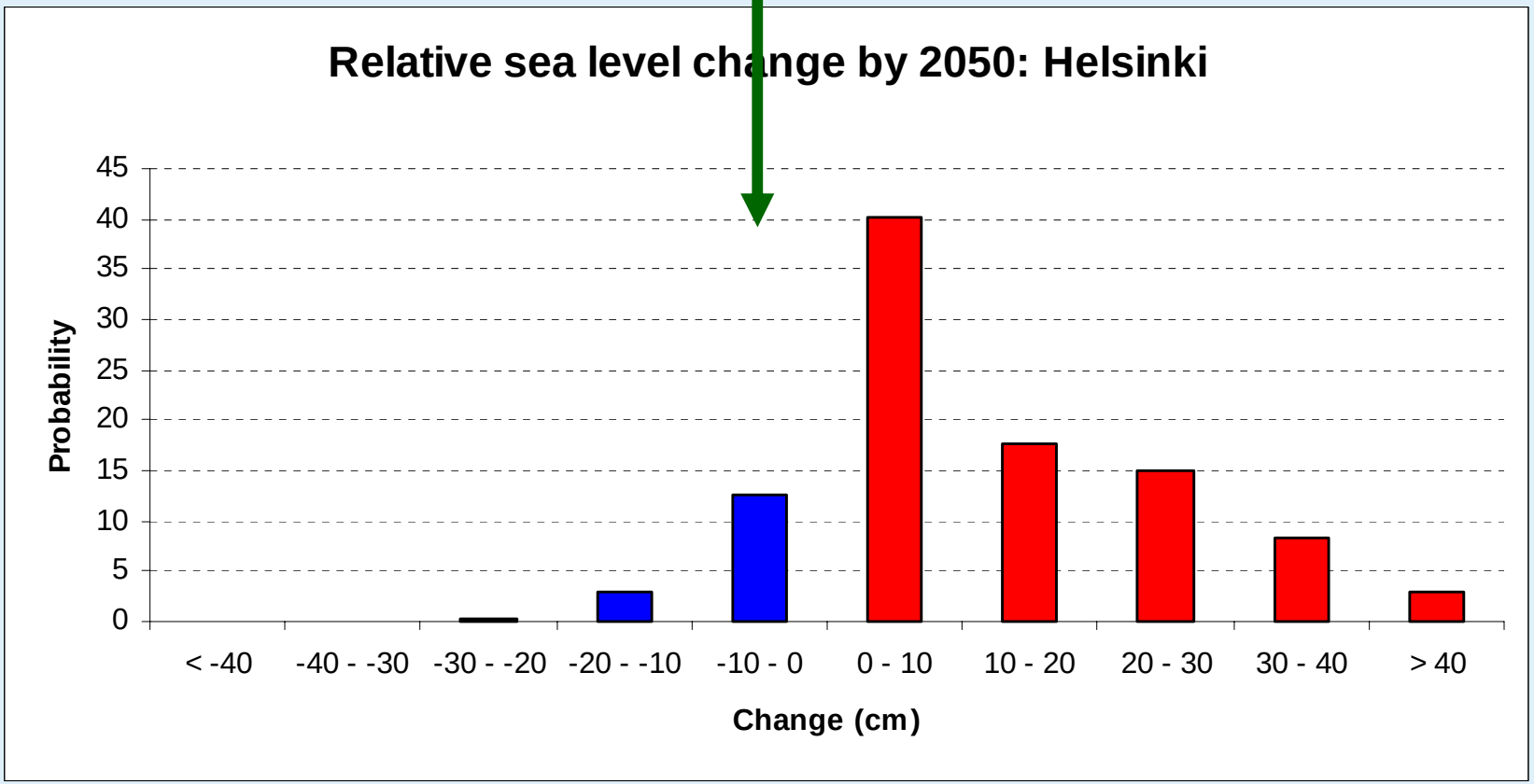
A1, A2, B1, B2 (FIN*SKEN*)



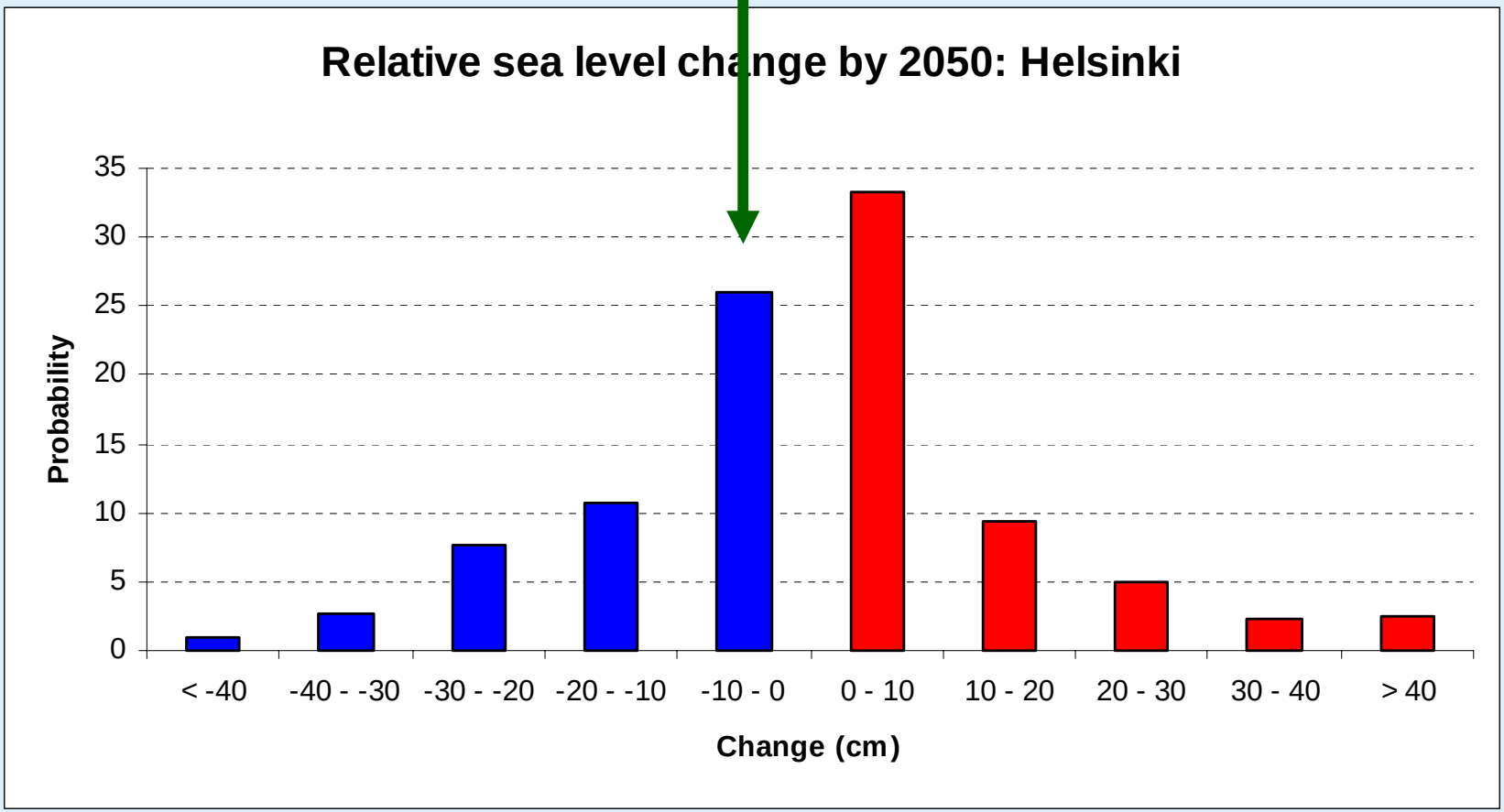
A1, A2, B1, B2 (FIN*SKEN*)



AVEC 2

SYKE

A1, A2, B1, B2 (FIN*SKEN*)



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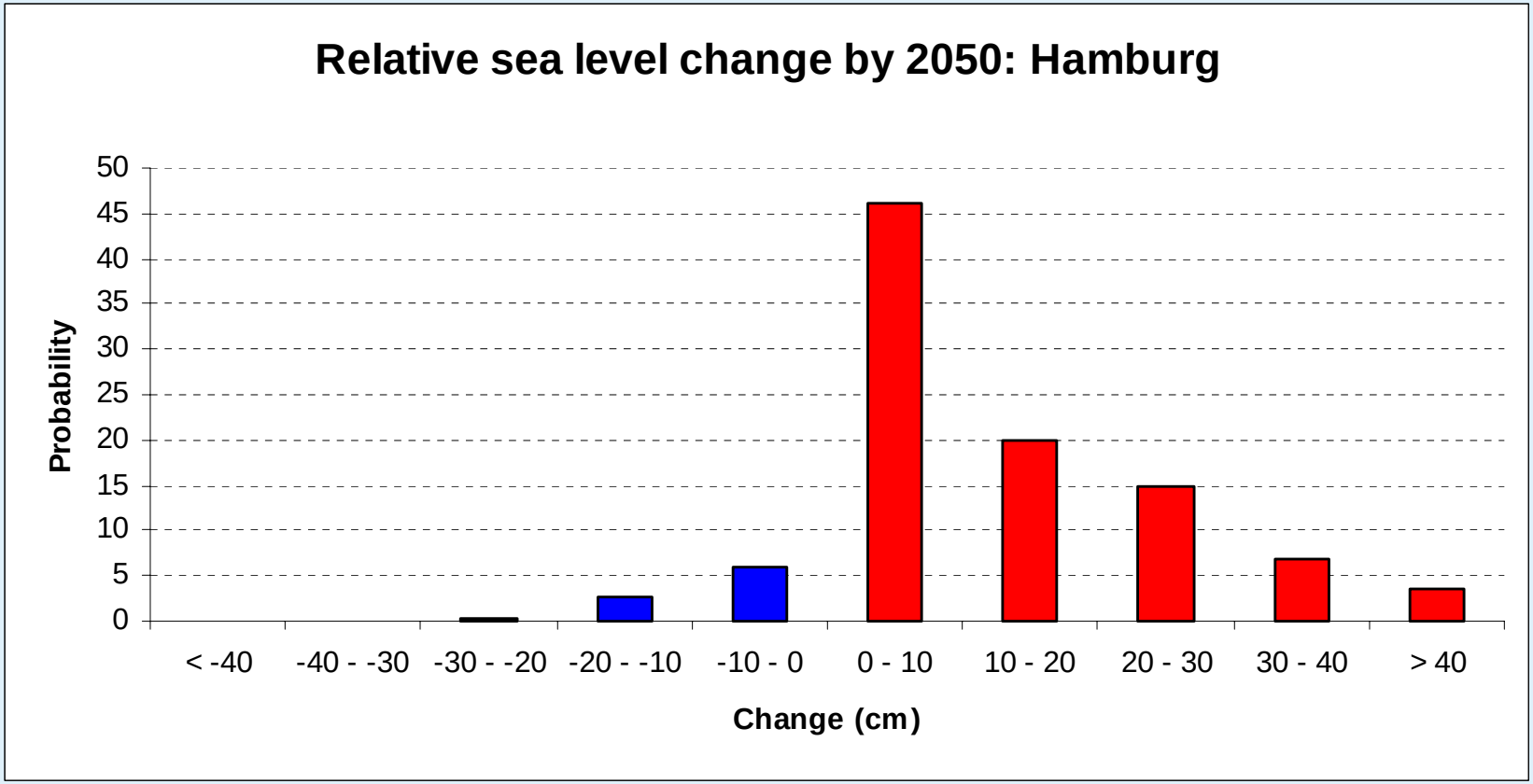
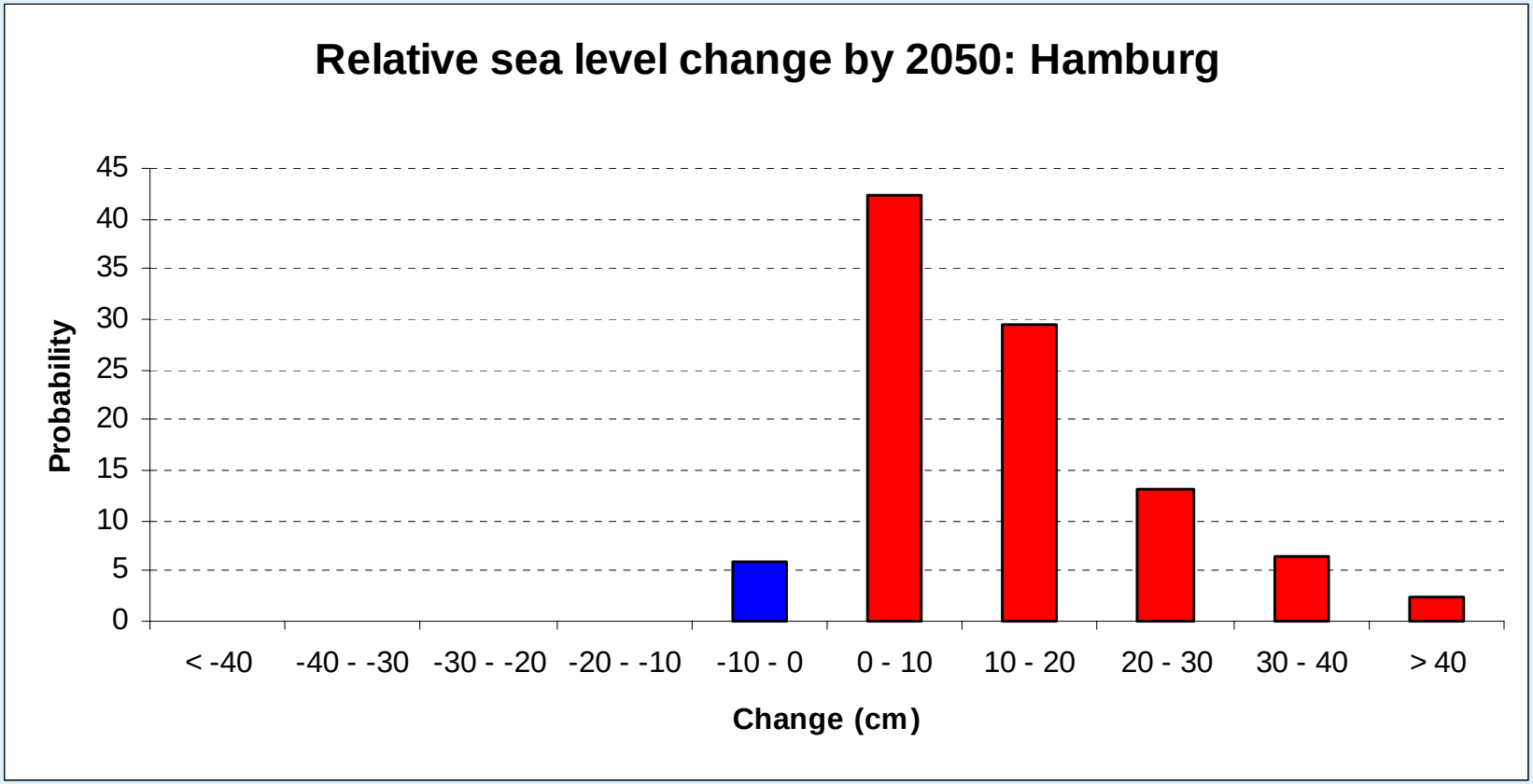
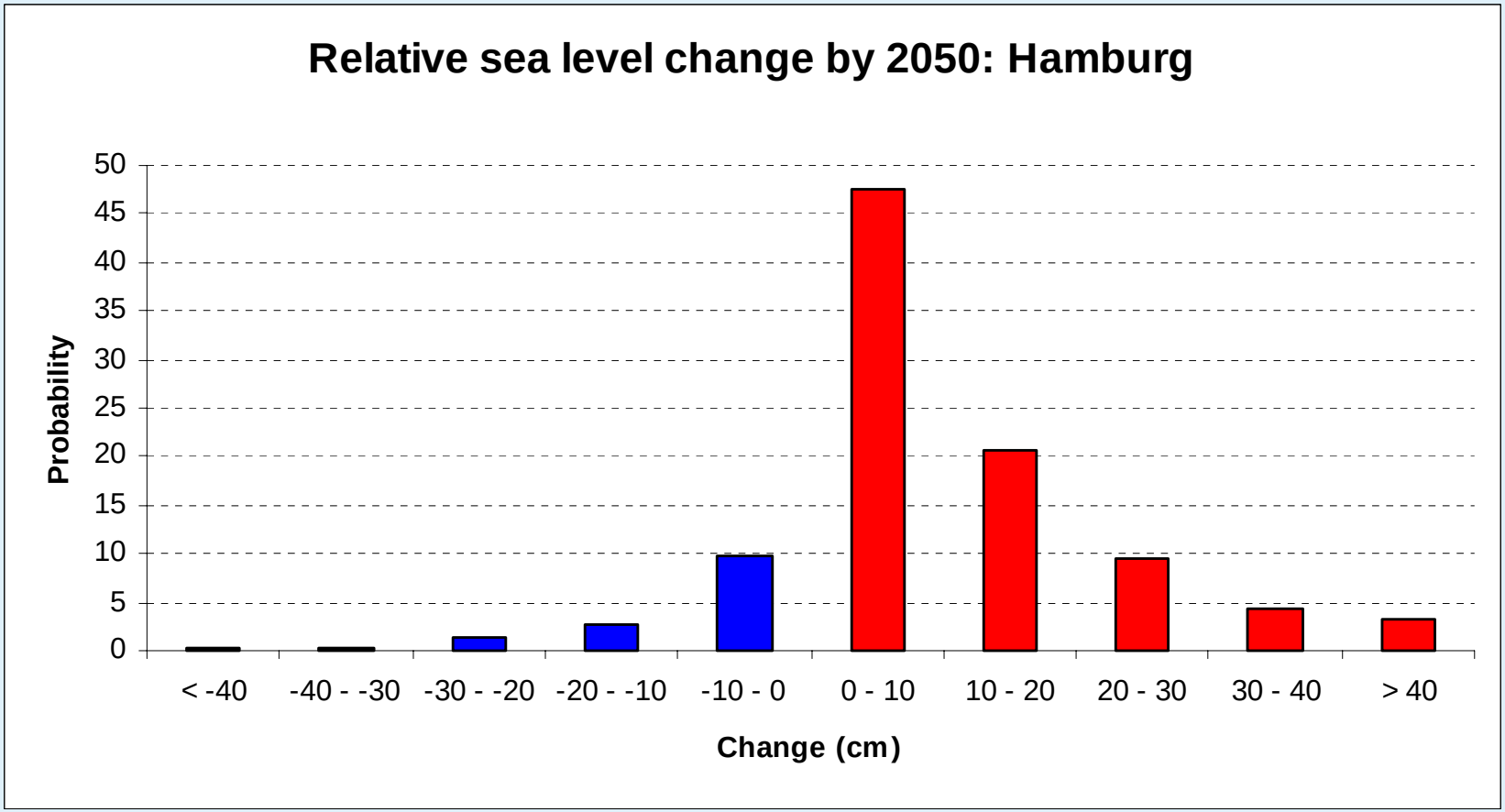
SYKE


Relative sea level change by 2050: Hamburg
Probability
50
45
40
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Change (cm)


Relative sea level change by 2050: Hamburg
Probability
45
40
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Change (cm)

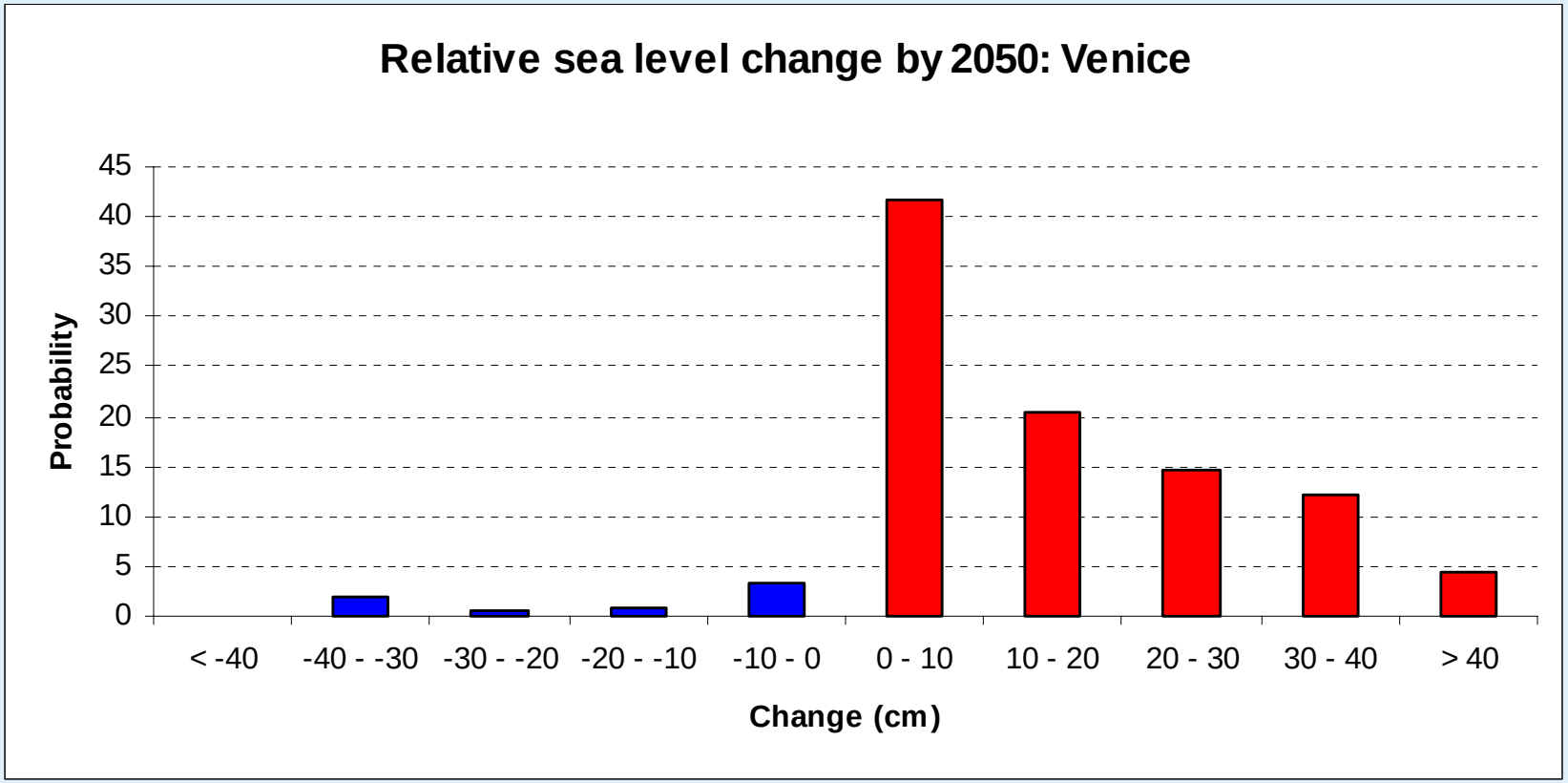
AVEC 2

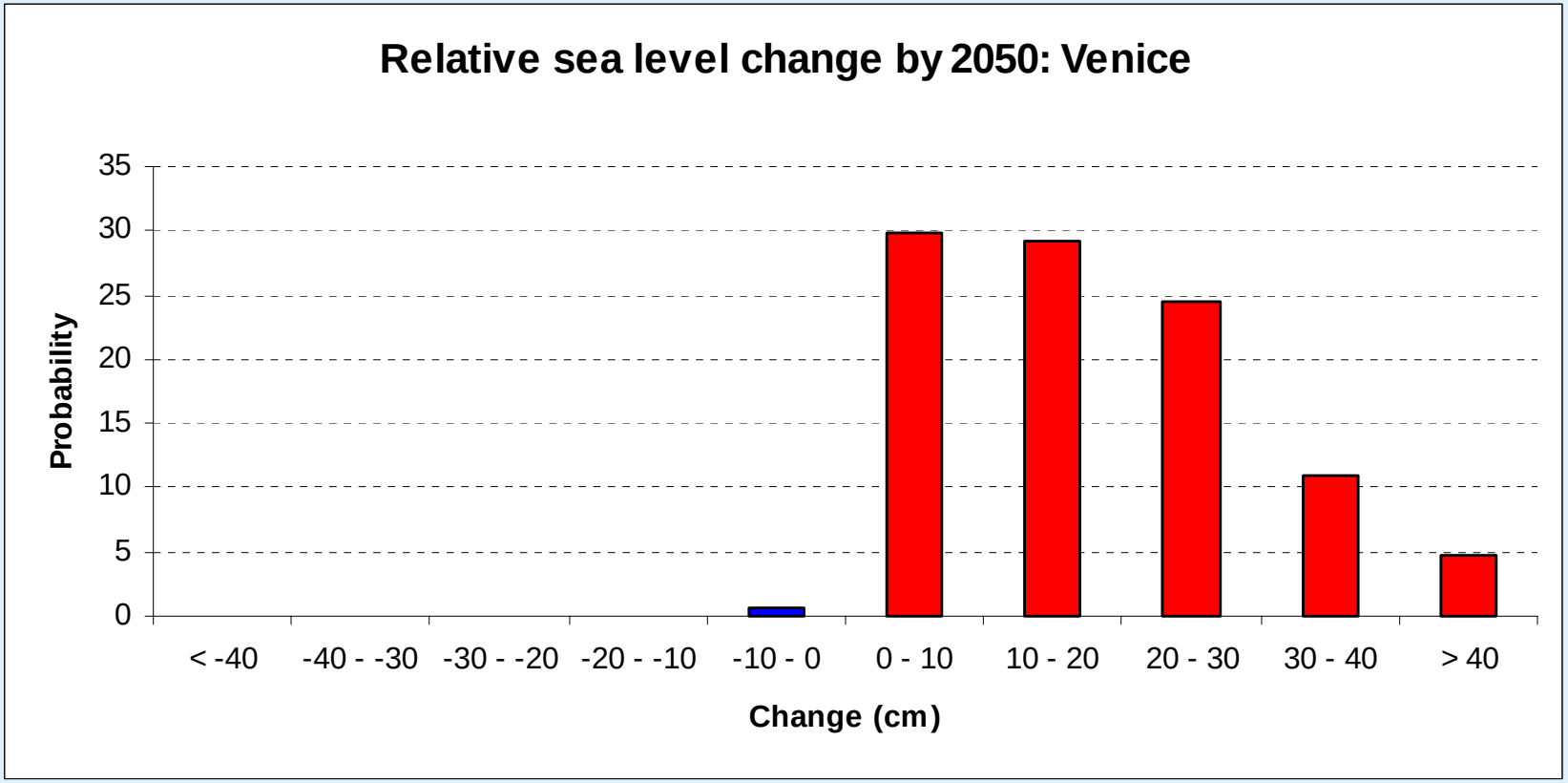
SYKE


Relative sea level change by 2050: Hamburg
Probability
50
45
40
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Change (cm)

AVEC 1

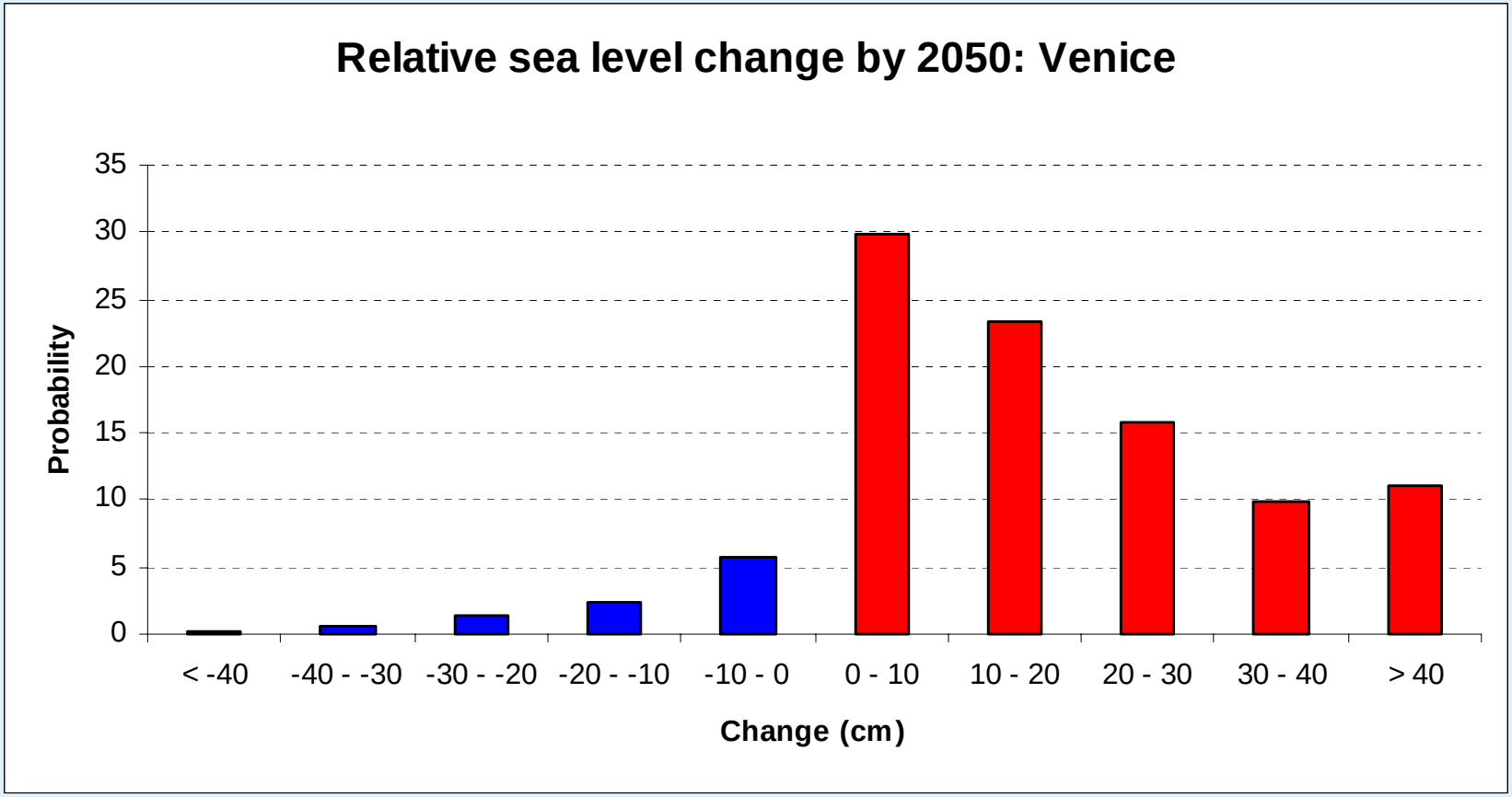
SYKE


Relative sea level change by 2050: Venice
Probability
45
40
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Change (cm)


Relative sea level change by 2050: Venice
Probability
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Change (cm)

AVEC 2

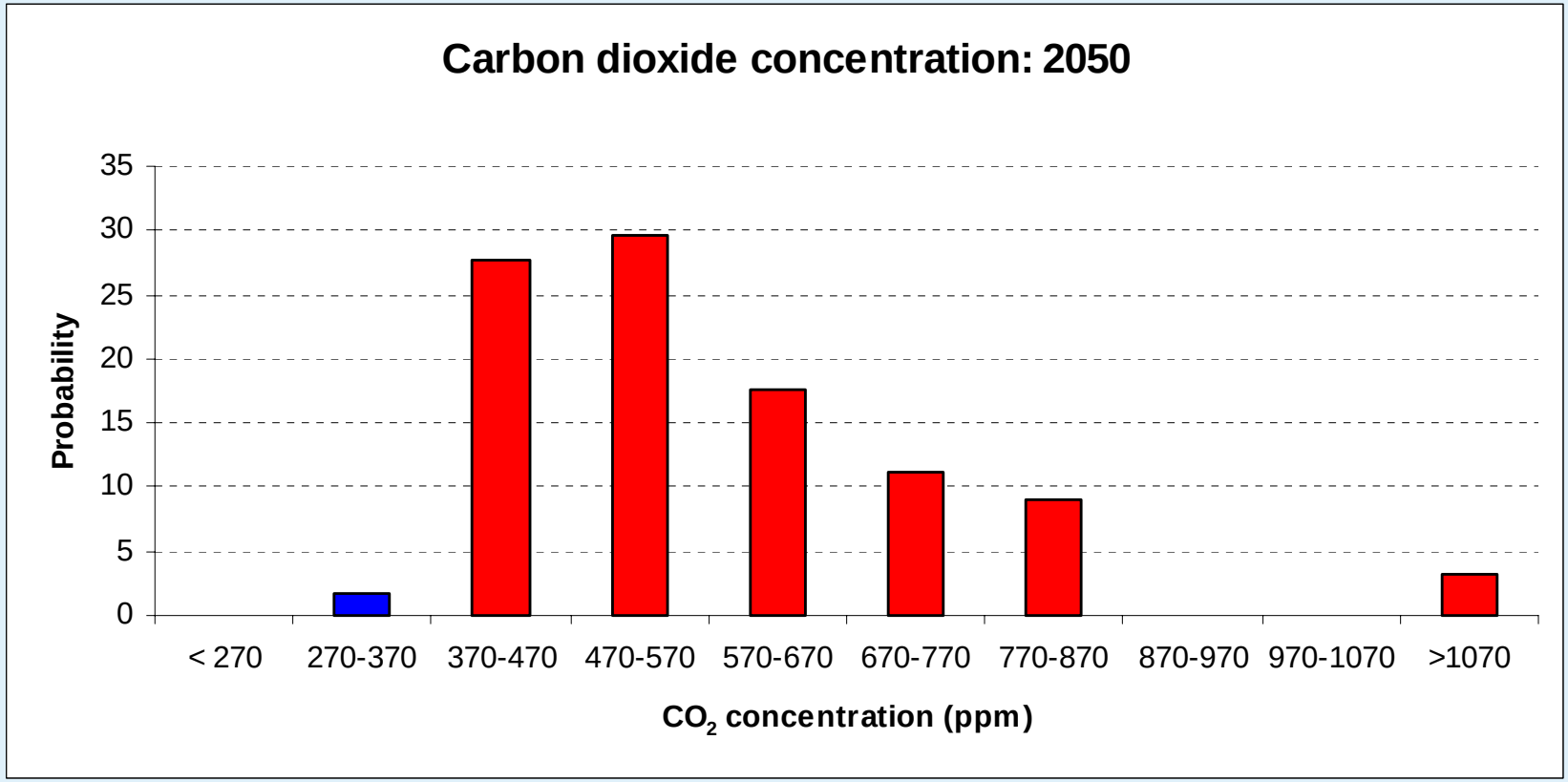
SYKE


Relative sea level change by 2050: Venice
Probability
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Change (cm)

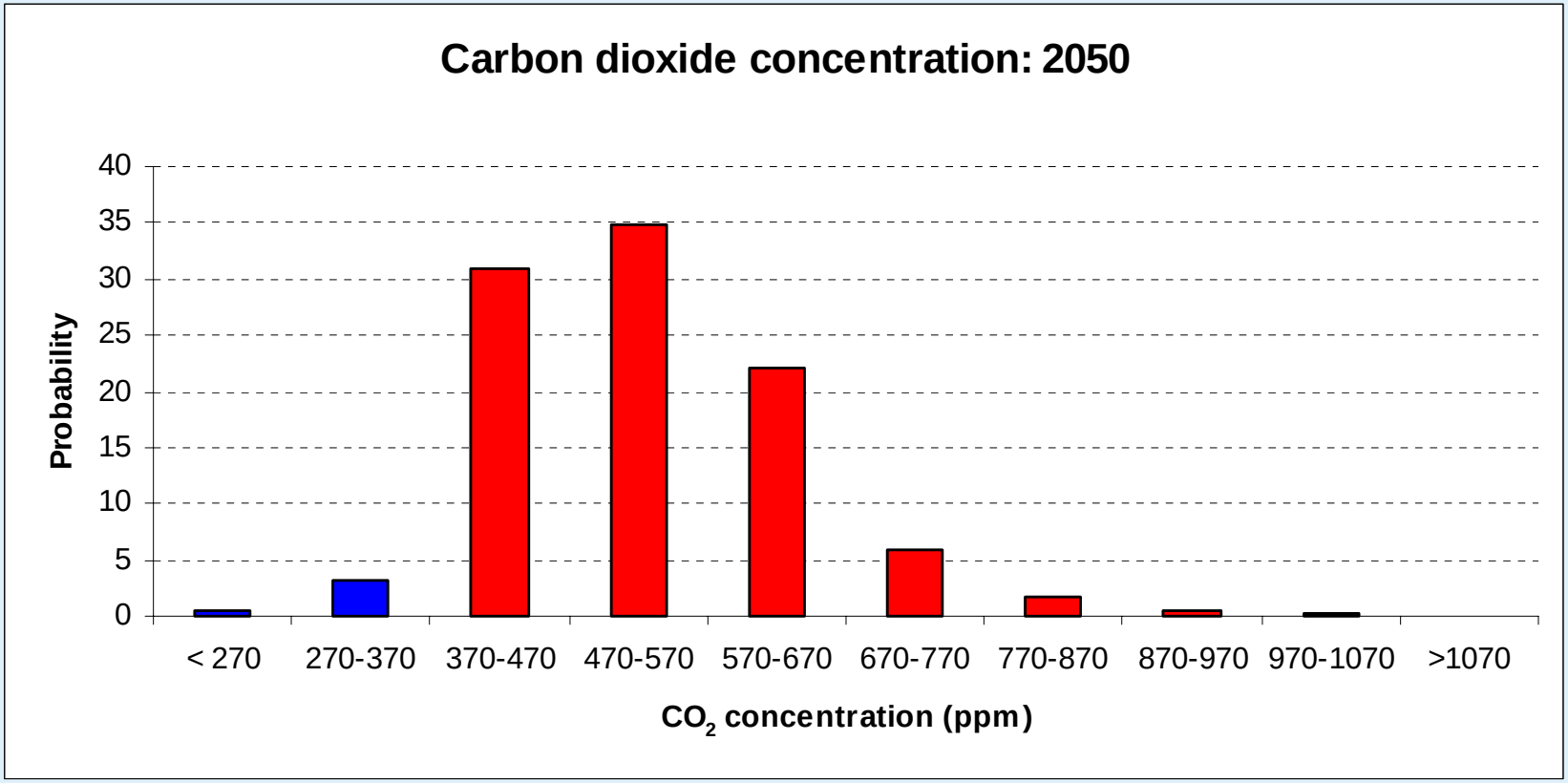
AVEC 1

SYKE

ATEAM B1 B2 A2 A1



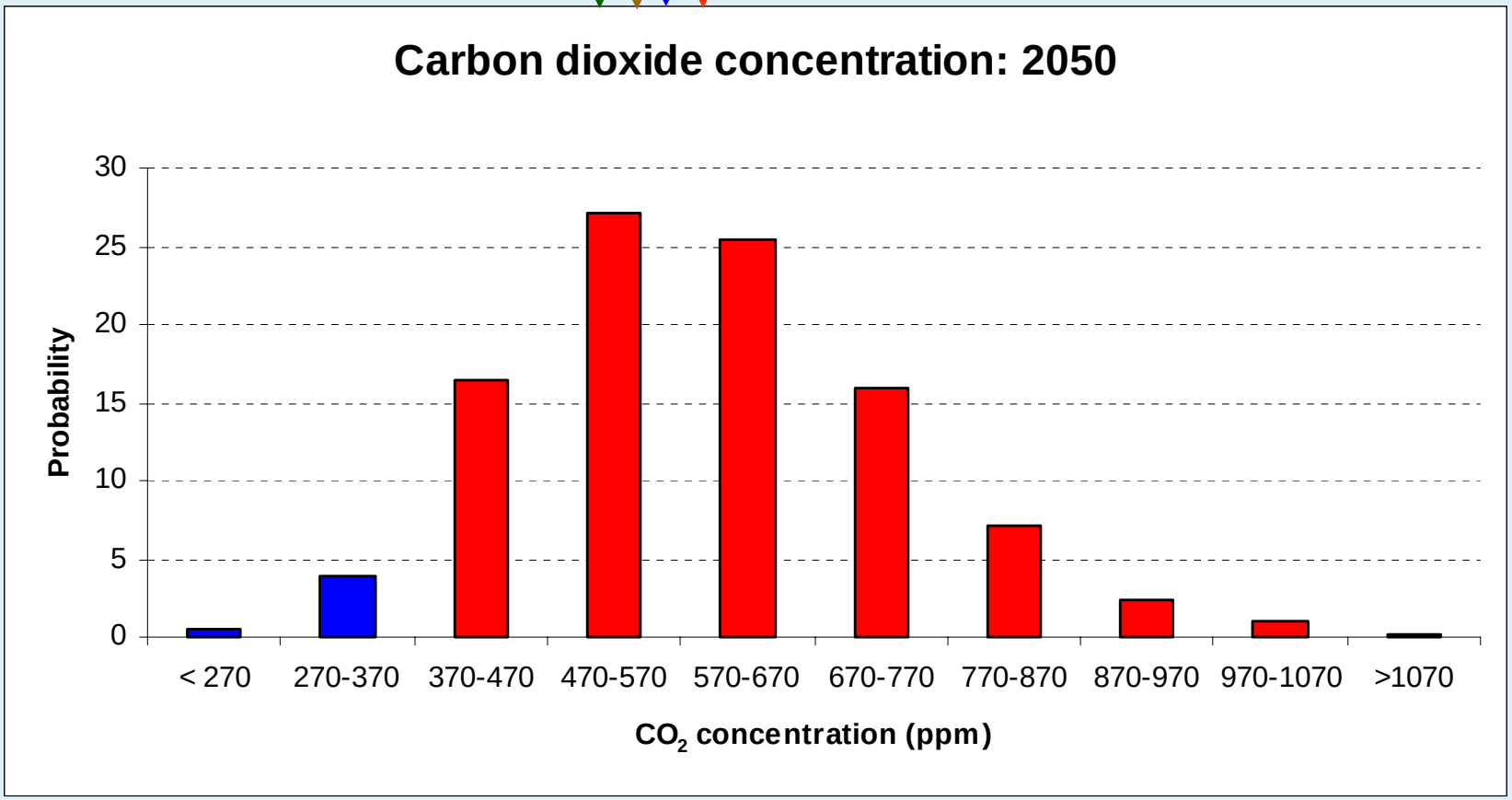
ATEAM B1 B2 A2 A1



AVEC 2

SYKE

ATEAM B1 B2 A2 A1

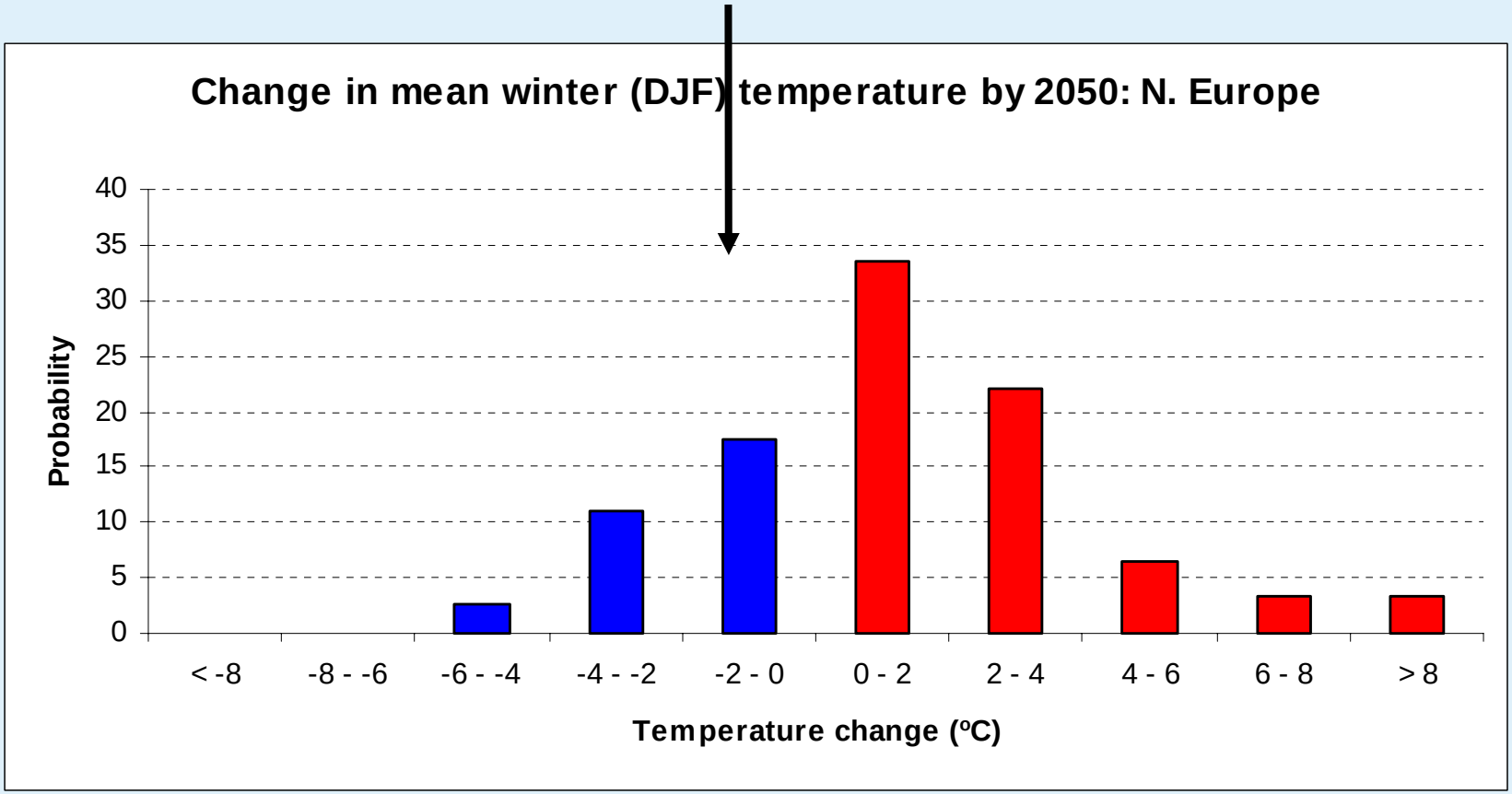


AVEC 1

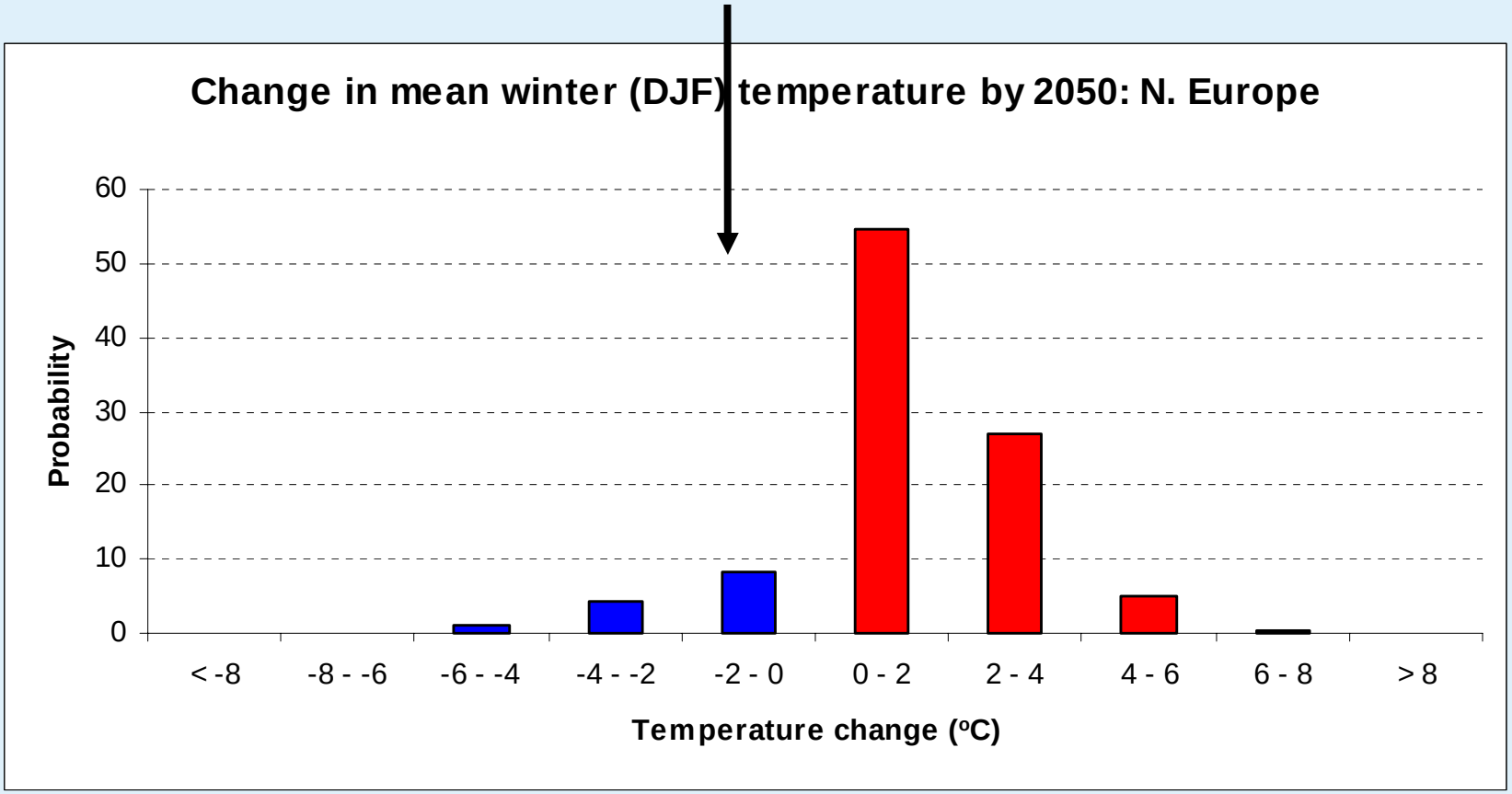
6.10.2006

SYKE

Little Ice Age/THC collapse?



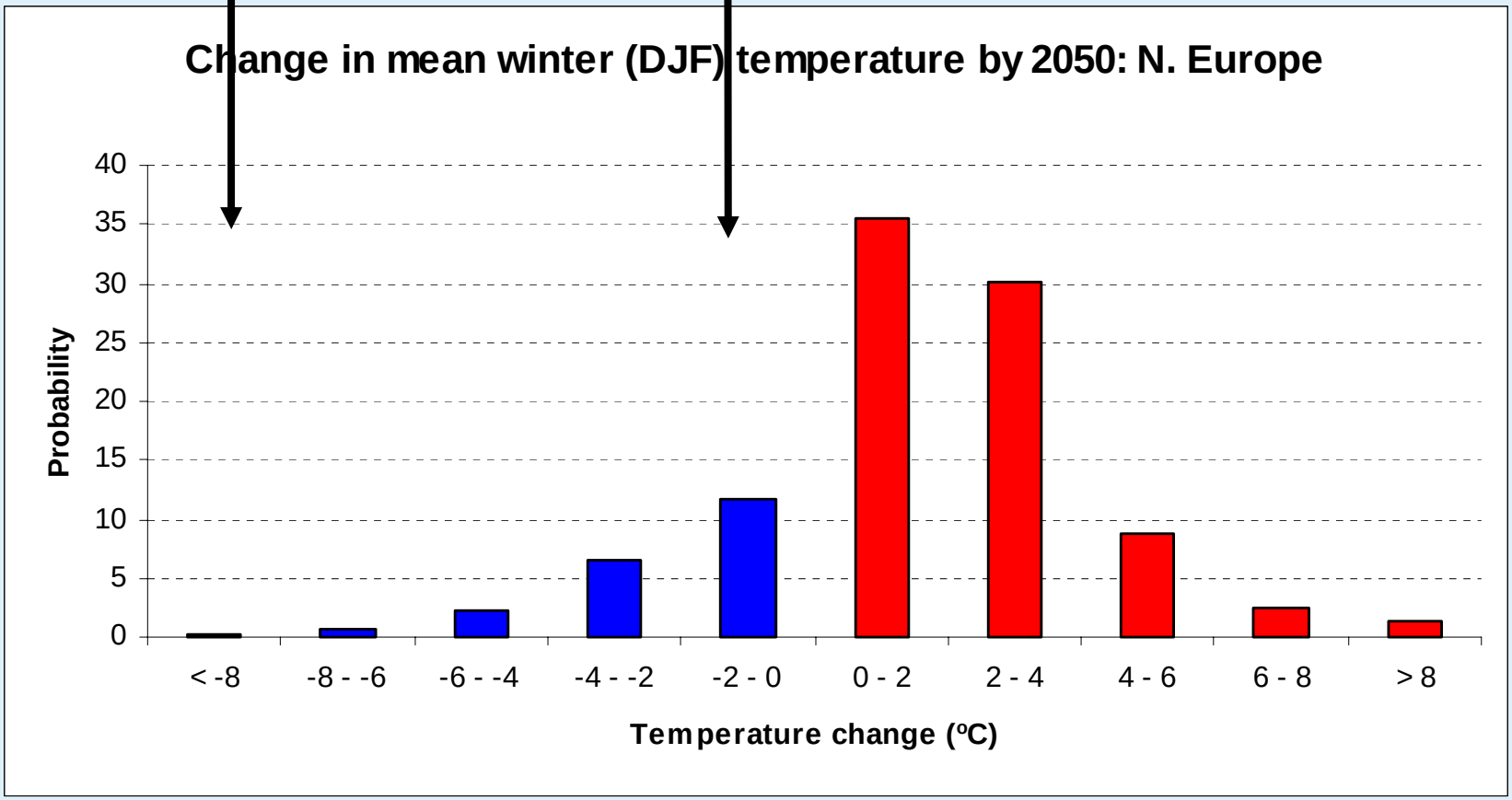
Little Ice Age/THC collapse?



AVEC 2

SYKE

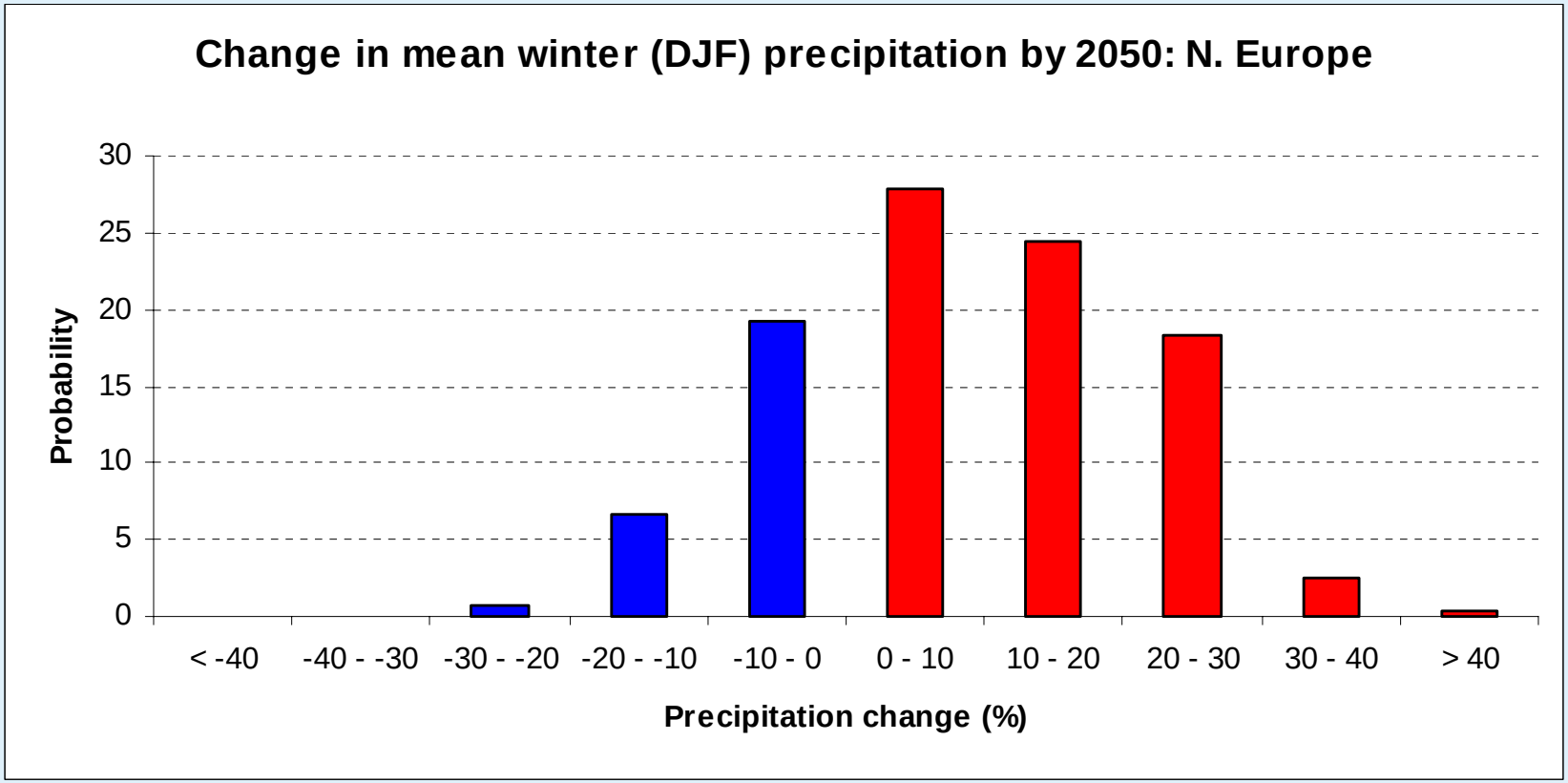
? Little Ice Age/THC collapse?

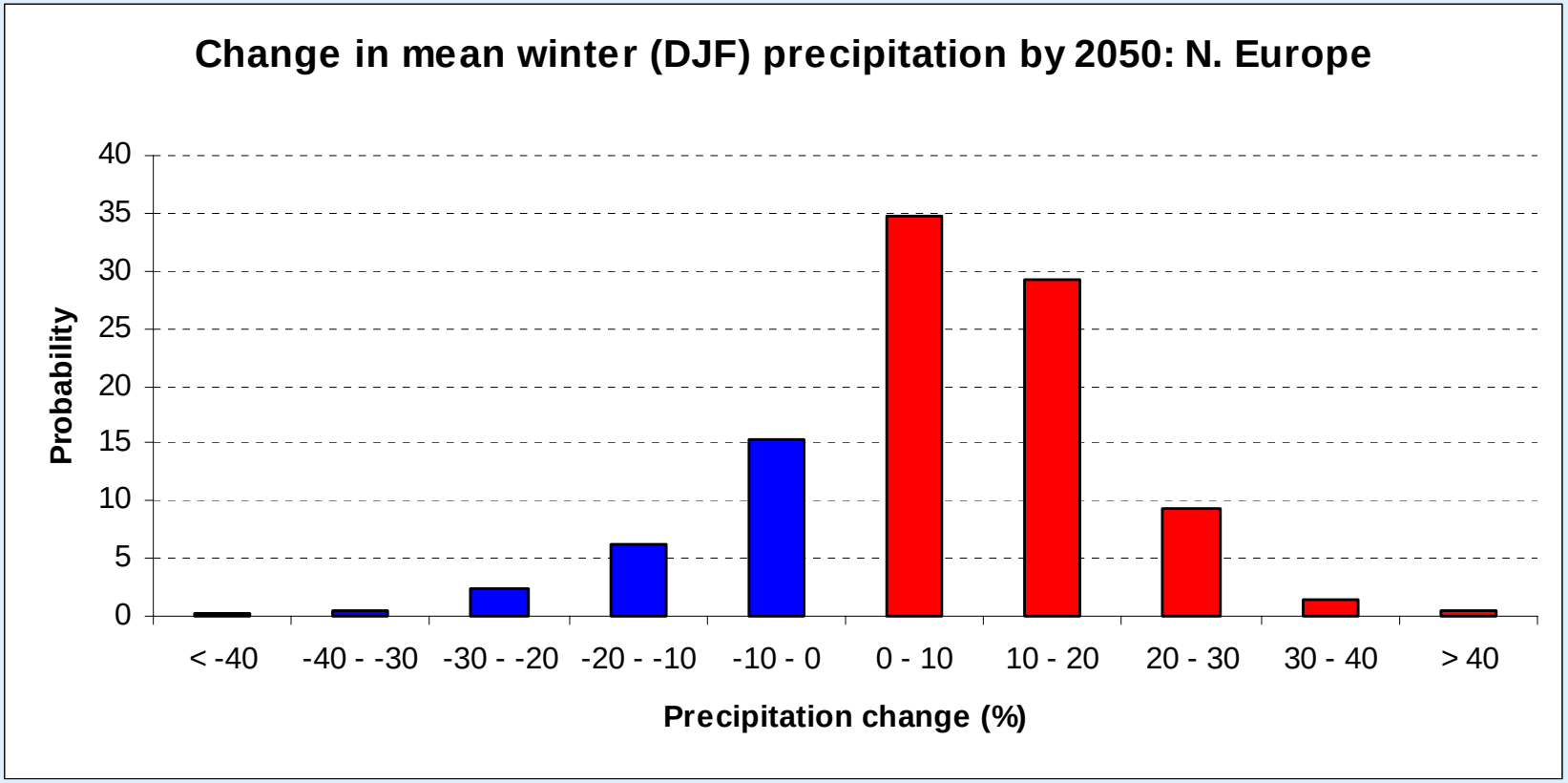


AVEC 1

6.10.2006

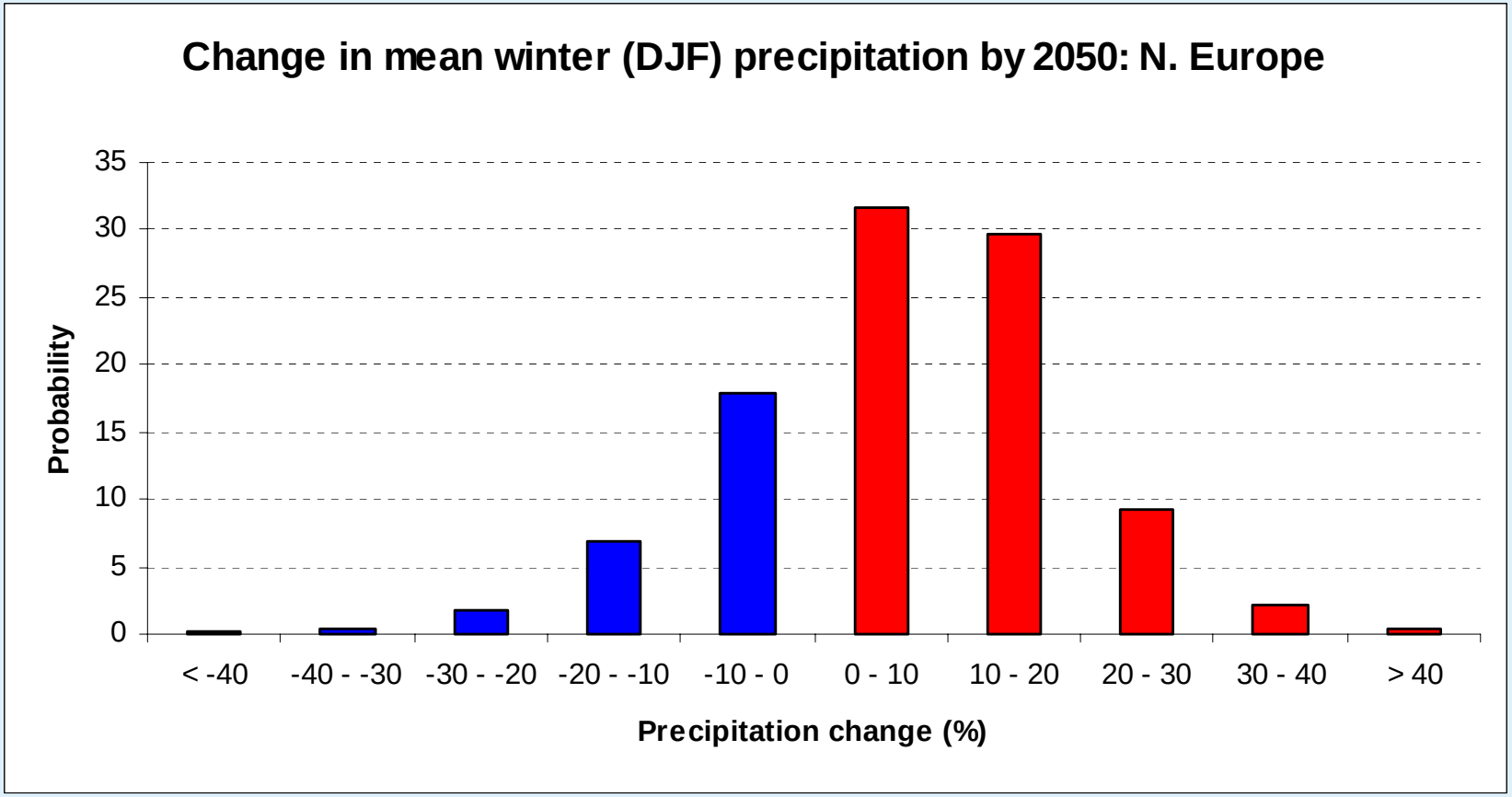
SYKE


Change in mean winter (DJF) precipitation by 2050: N. Europe
Probability
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)


Change in mean winter (DJF) precipitation by 2050: N. Europe
Probability
40
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

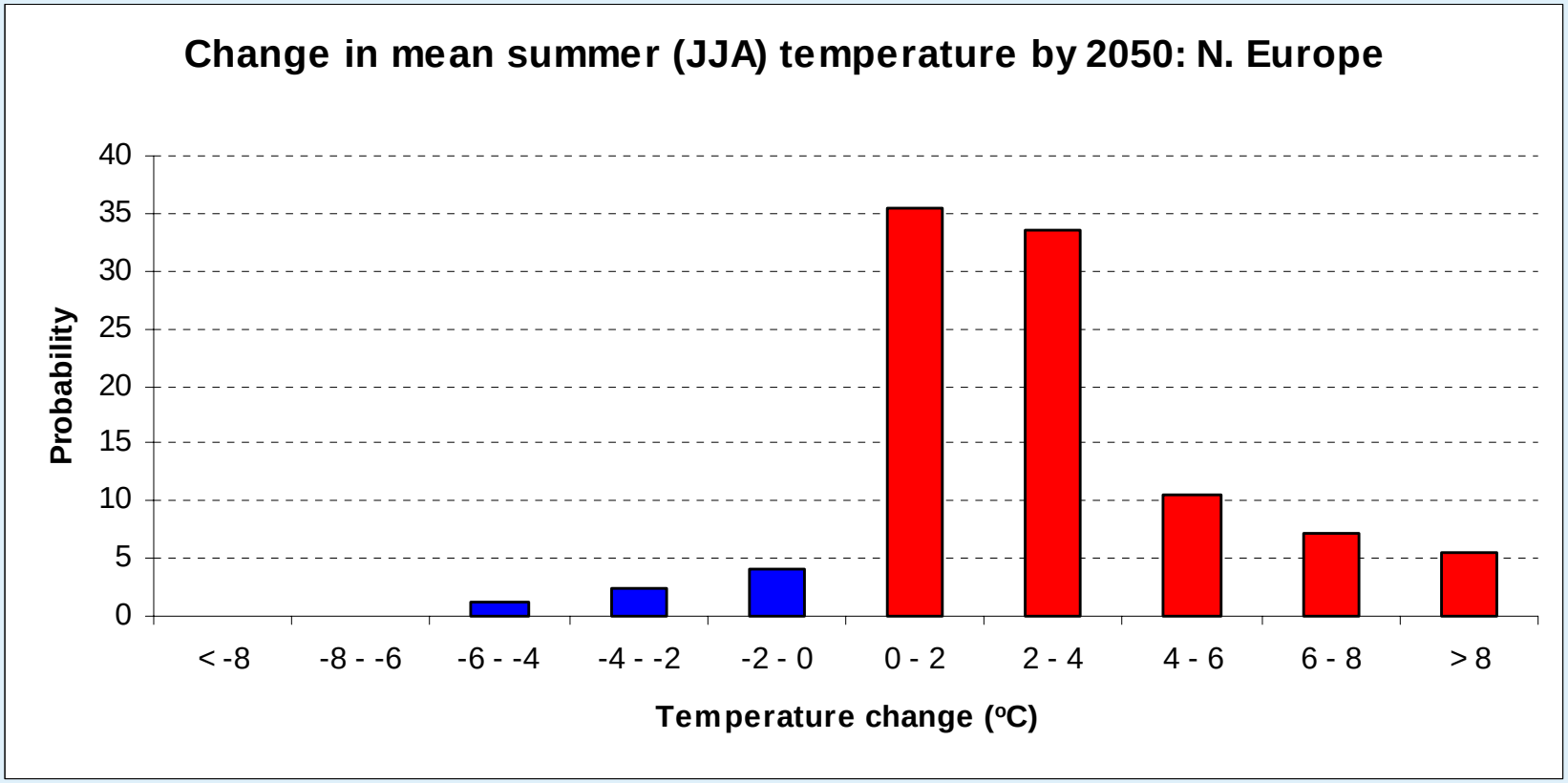
AVEC 2

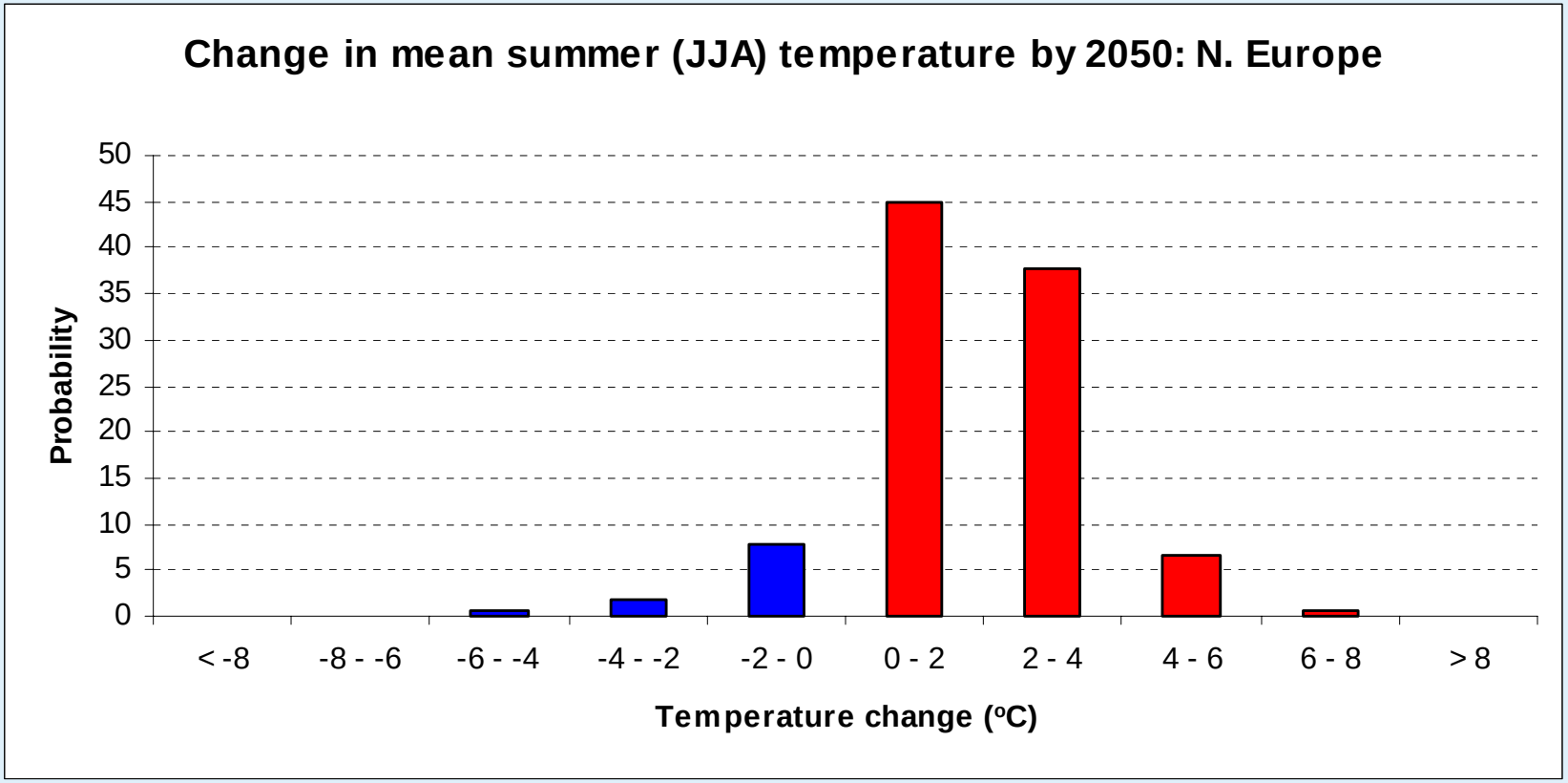
SYKE


Change in mean winter (DJF) precipitation by 2050: N. Europe
Probability
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

AVEC 1

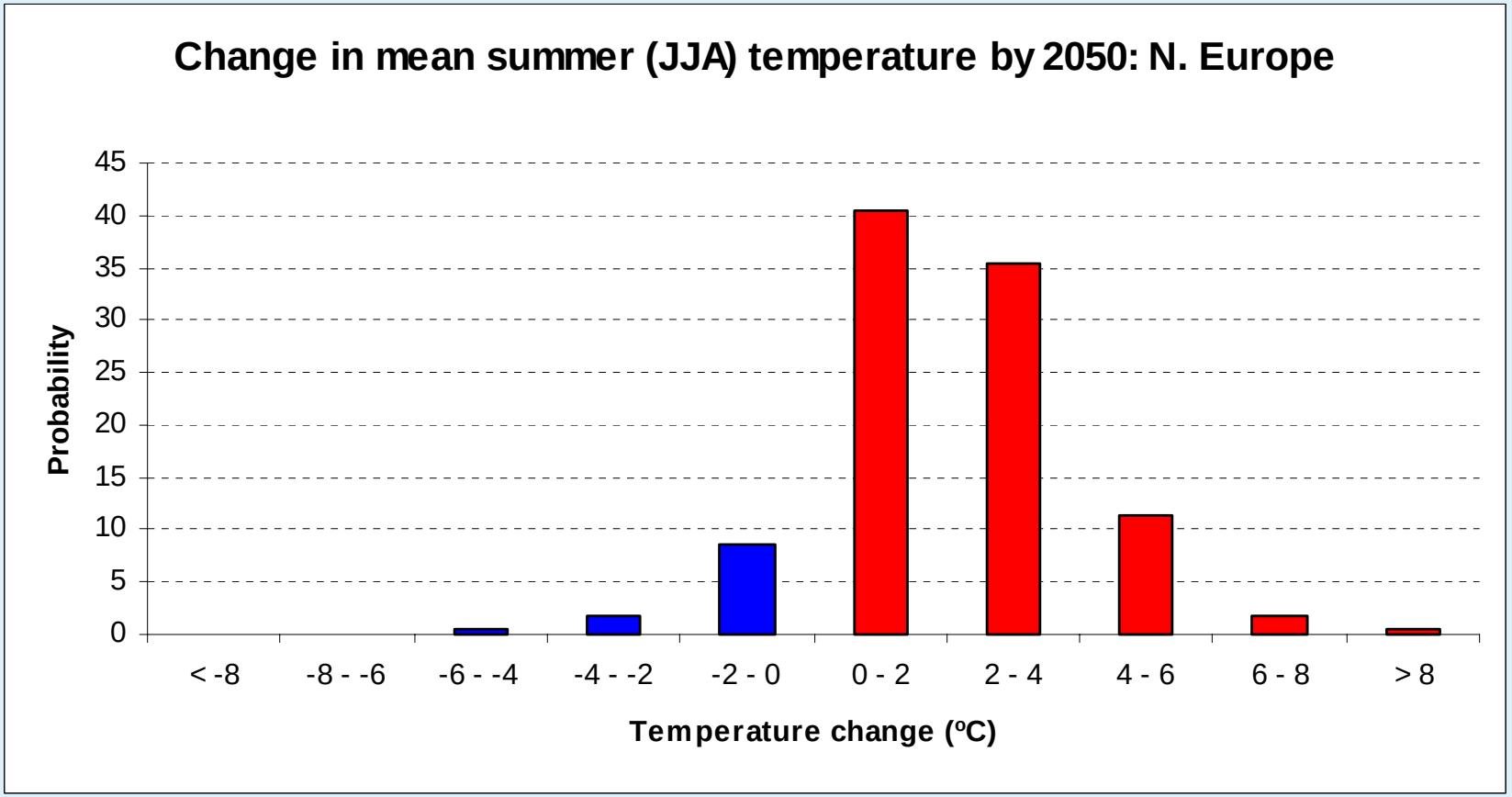
SYKE


Change in mean summer (JJA) temperature by 2050: N. Europe
Probability
40
35
30
25
20
15
10
5
0
< -8
-8 - -6
-6 - -4
-4 - -2
-2 - 0
0 - 2
2 - 4
4 - 6
6 - 8
> 8
Temperature change (ºC)


Change in mean summer (JJA) temperature by 2050: N. Europe
Probability
50
45
40
35
30
25
20
15
10
5
0
< -8
-8 - -6
-6 - -4
-4 - -2
-2 - 0
0 - 2
2 - 4
4 - 6
6 - 8
> 8
Temperature change (ºC)

AVEC 2

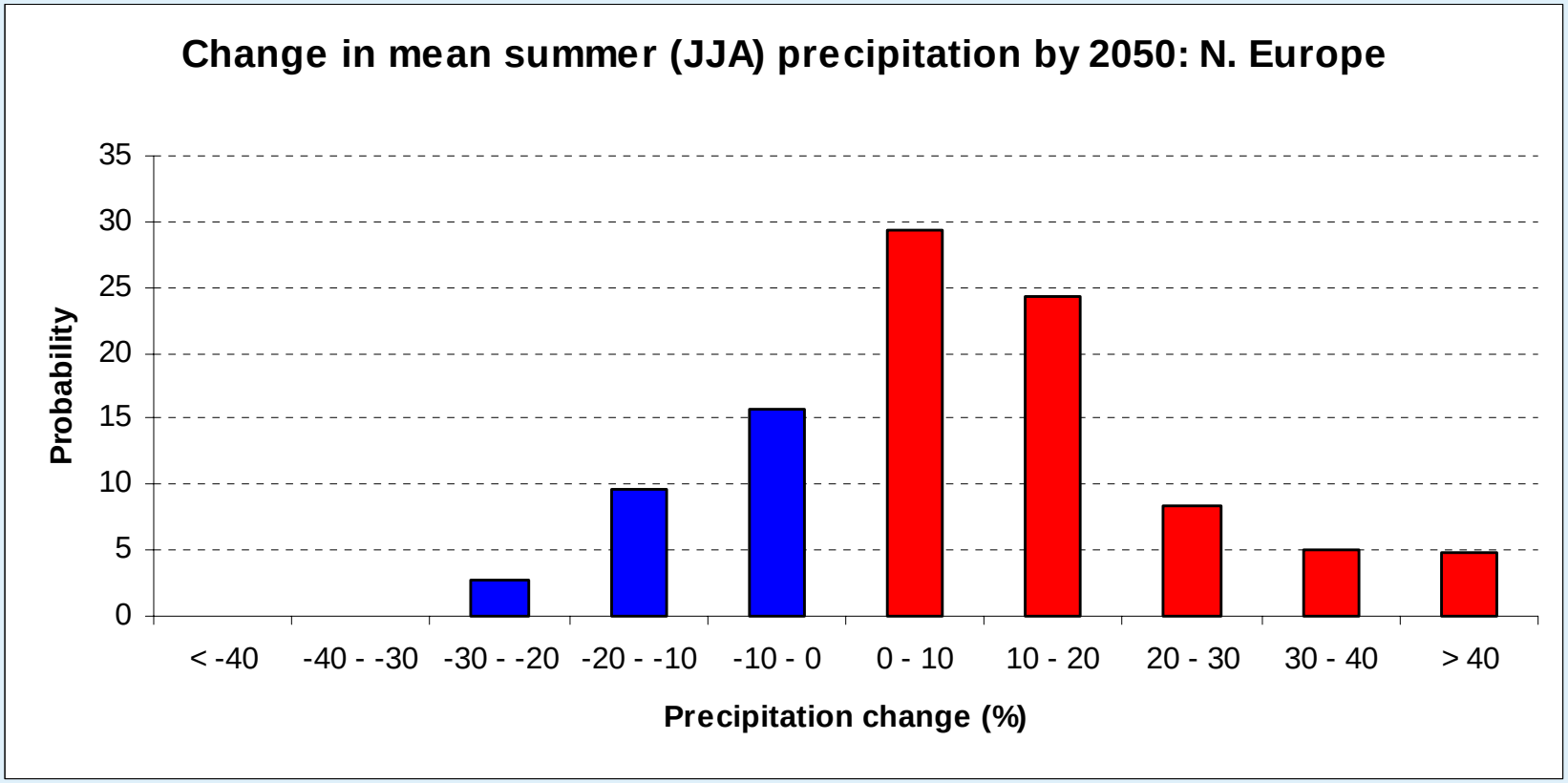
SYKE

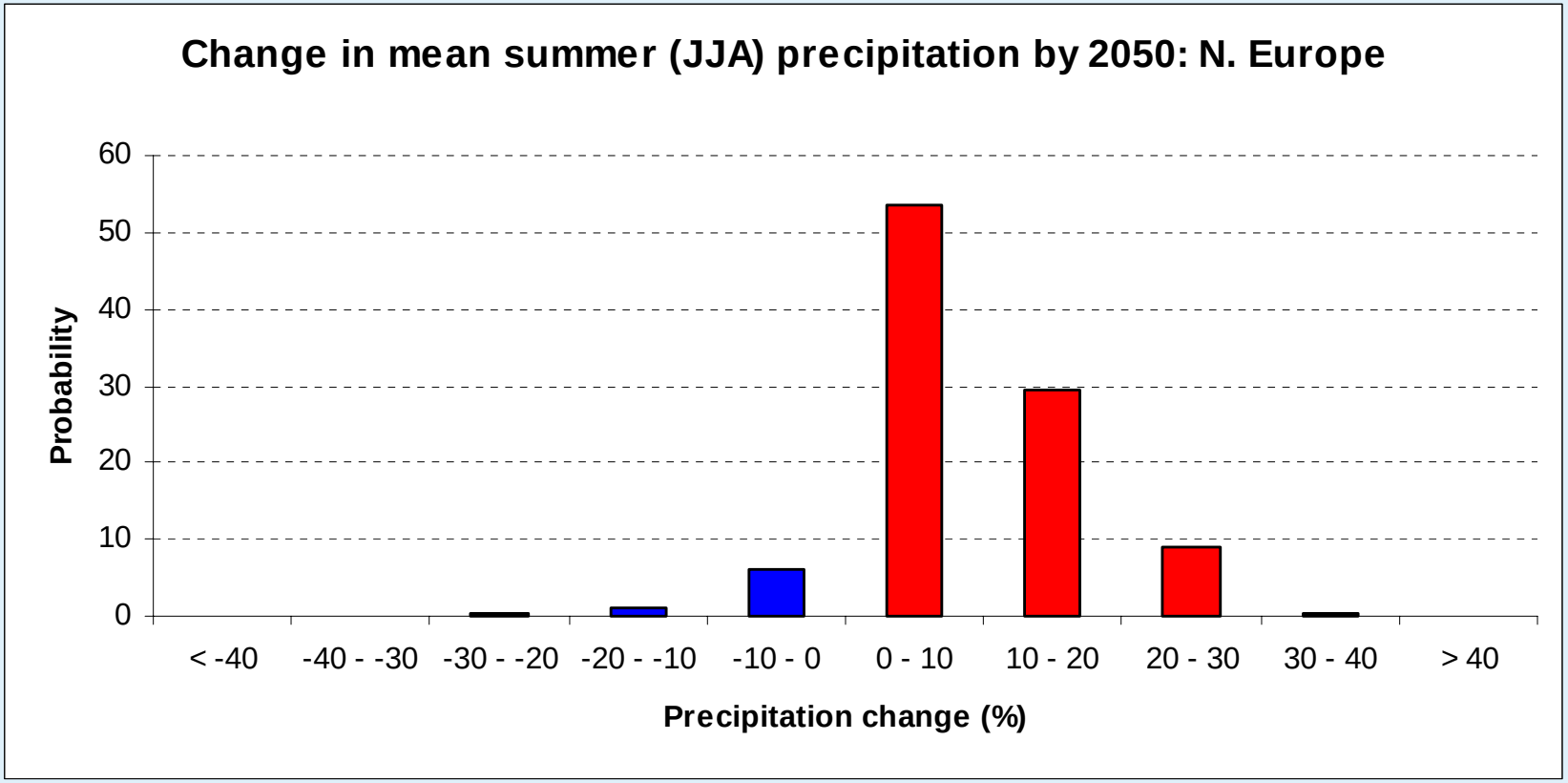


AVEC 1

6.10.2006

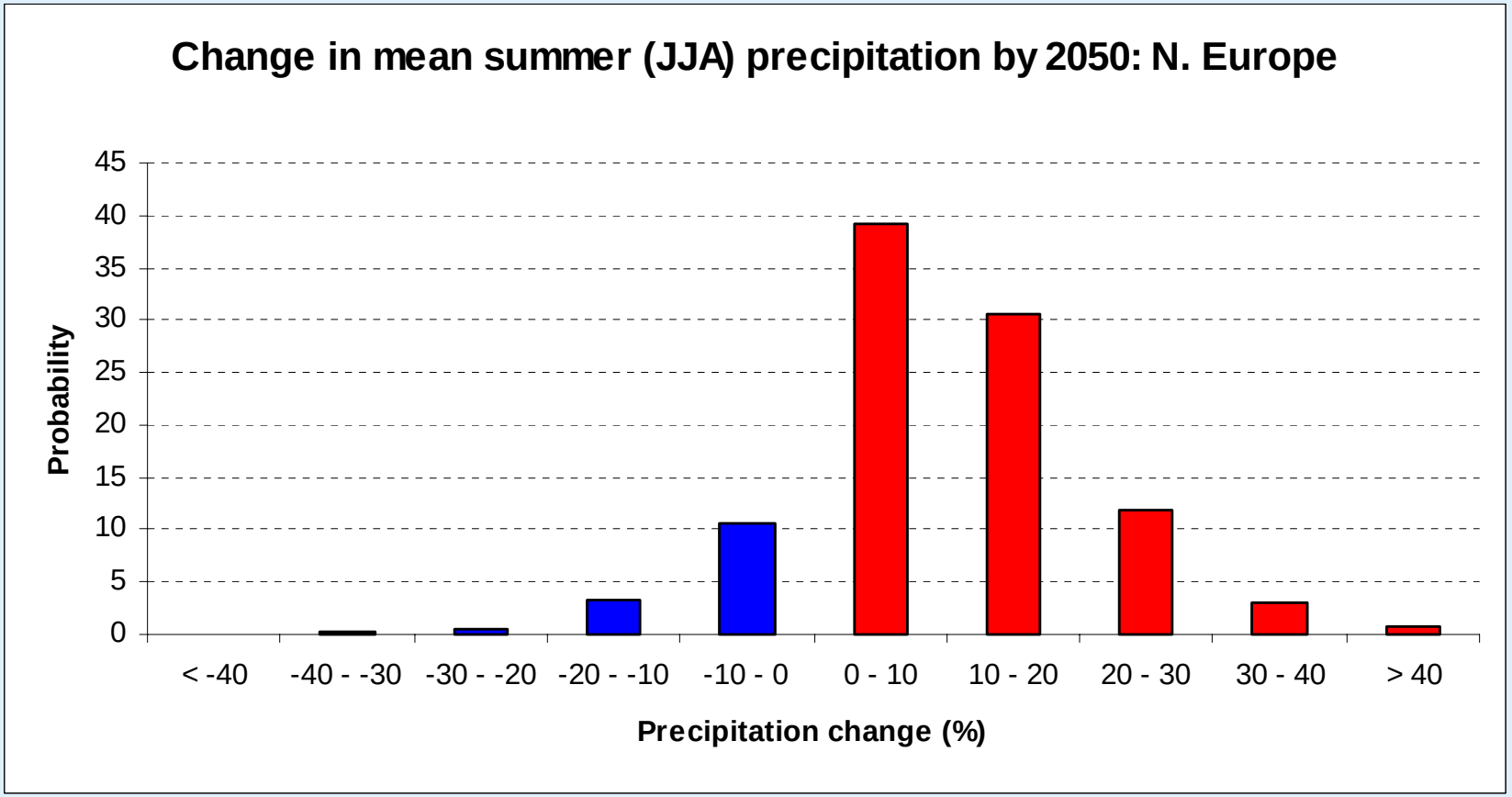
SYKE


Change in mean summer (JJA) precipitation by 2050: N. Europe
Probability
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)


Change in mean summer (JJA) precipitation by 2050: N. Europe
Probability
60
50
40
30
20
10
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

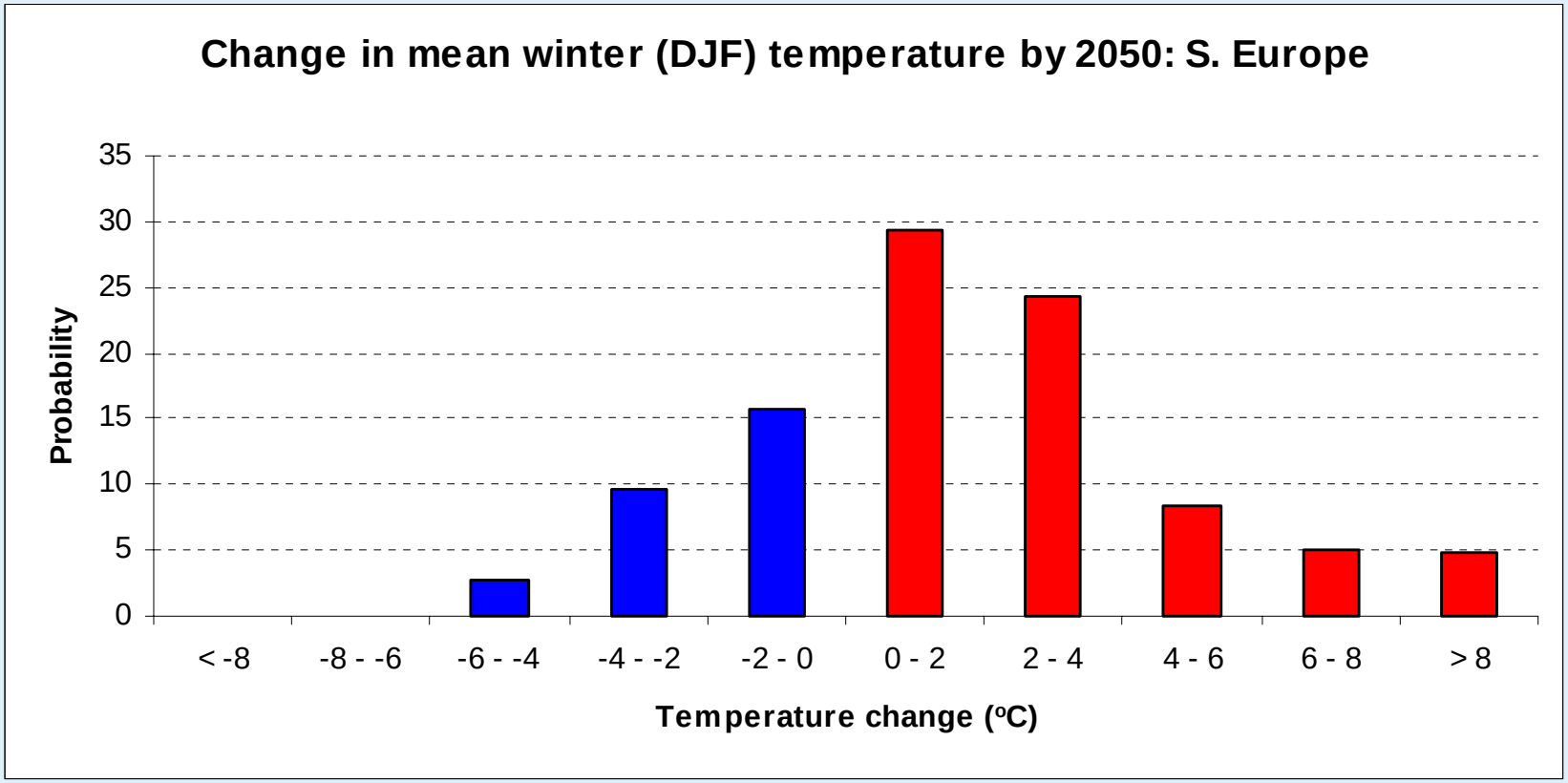
AVEC 2

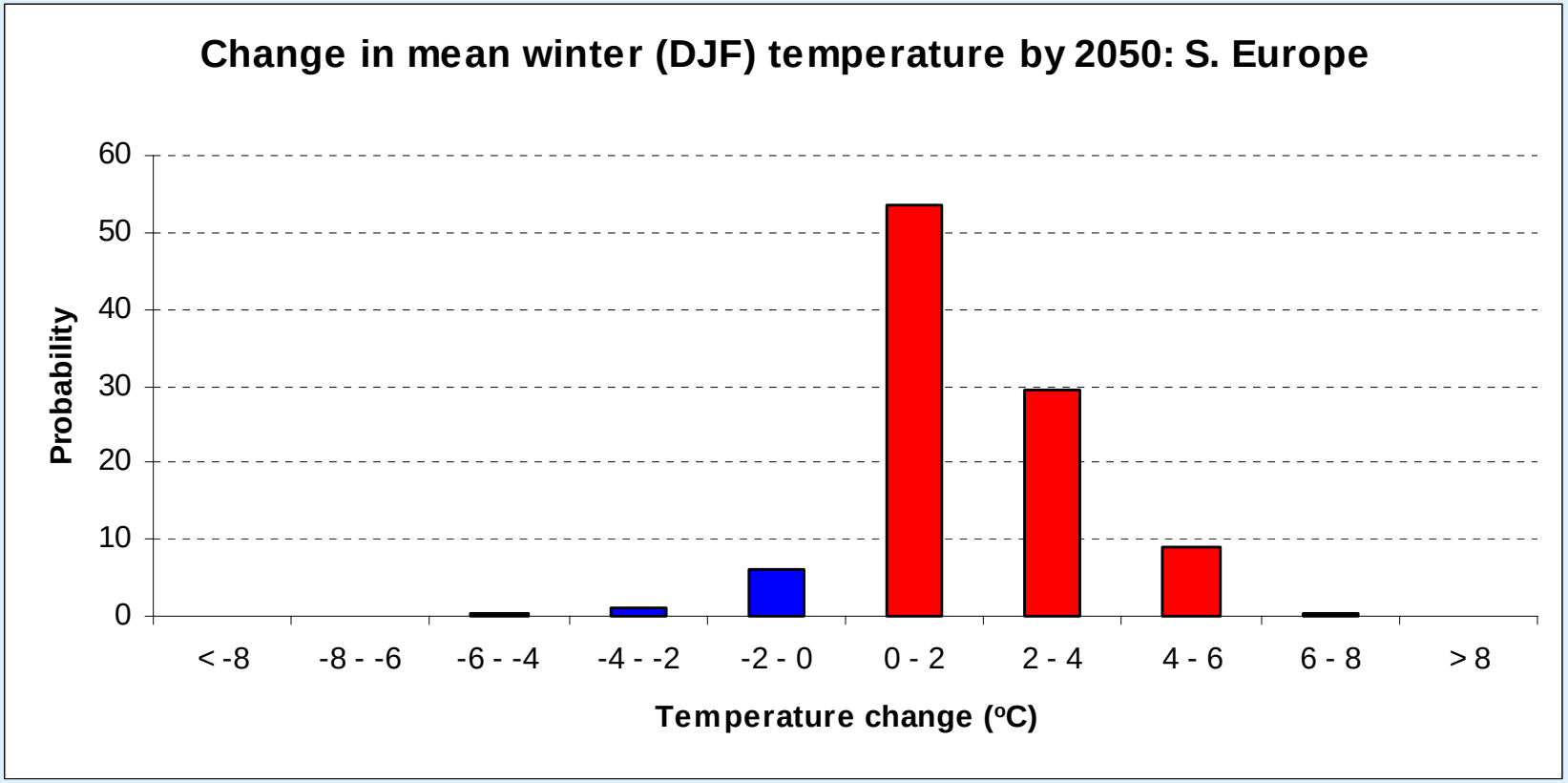
SYKE


Change in mean summer (JJA) precipitation by 2050: N. Europe
Probability
45
40
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

AVEC 1

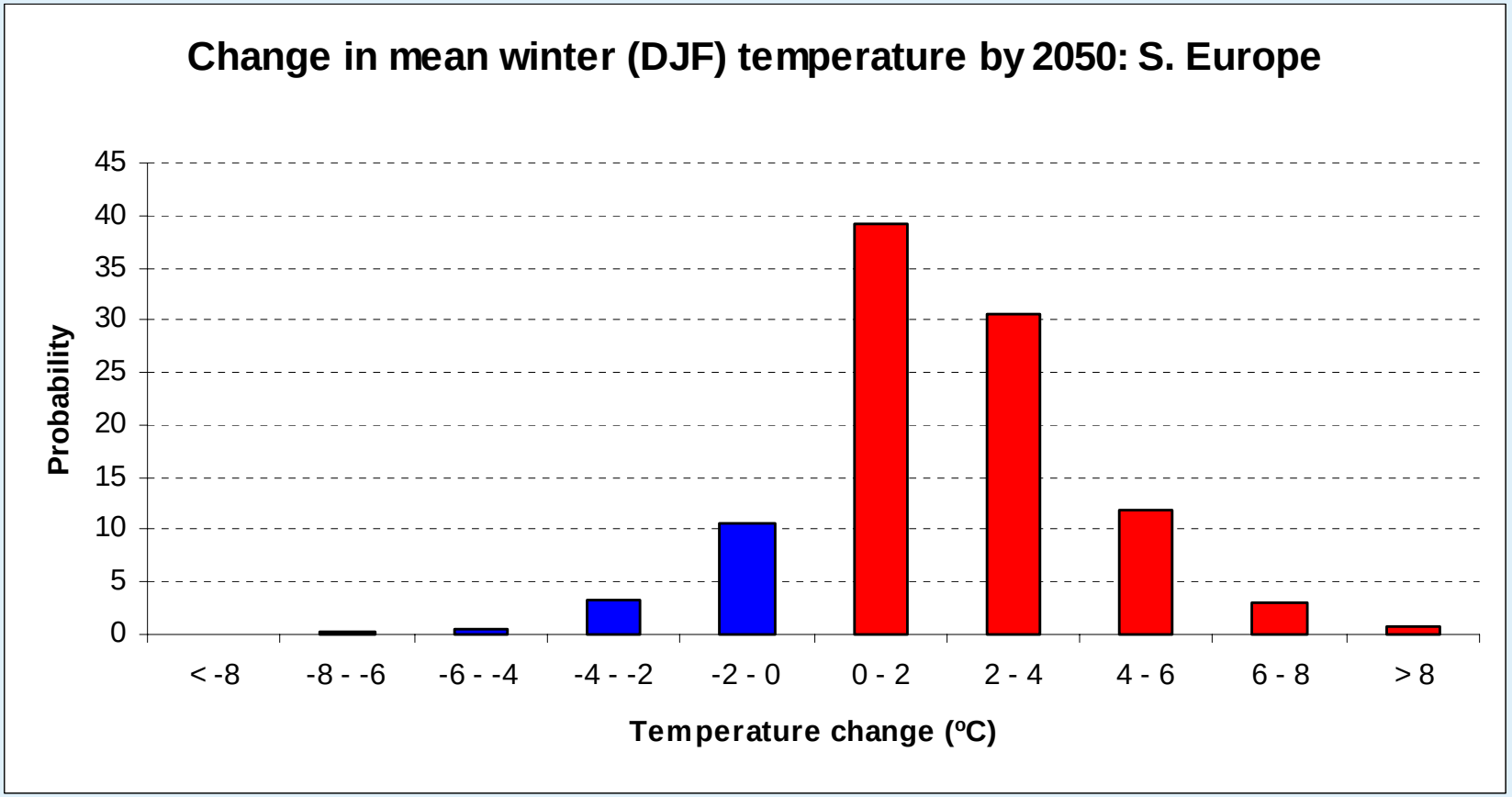
SYKE


Change in mean winter (DJF) temperature by 2050: S. Europe
Probability
35
30
25
20
15
10
5
0
< -8
-8 - -6
-6 - -4
-4 - -2
-2 - 0
0 - 2
2 - 4
4 - 6
6 - 8
> 8
Temperature change (ºC)


Change in mean winter (DJF) temperature by 2050: S. Europe
Probability
60
50
40
30
20
10
0
< -8
-8 - -6
-6 - -4
-4 - -2
-2 - 0
0 - 2
2 - 4
4 - 6
6 - 8
> 8
Temperature change (ºC)

AVEC 2

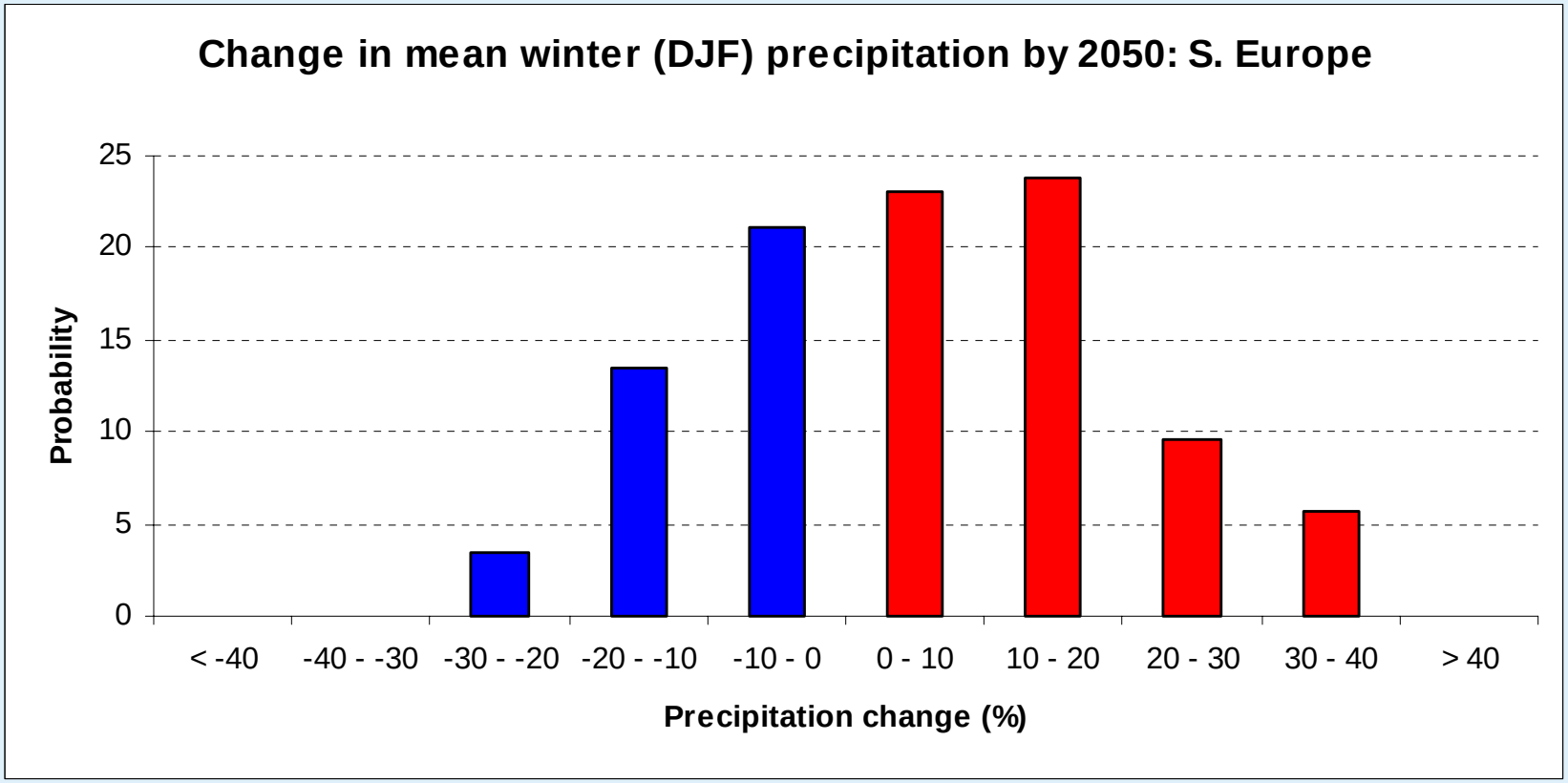
SYKE

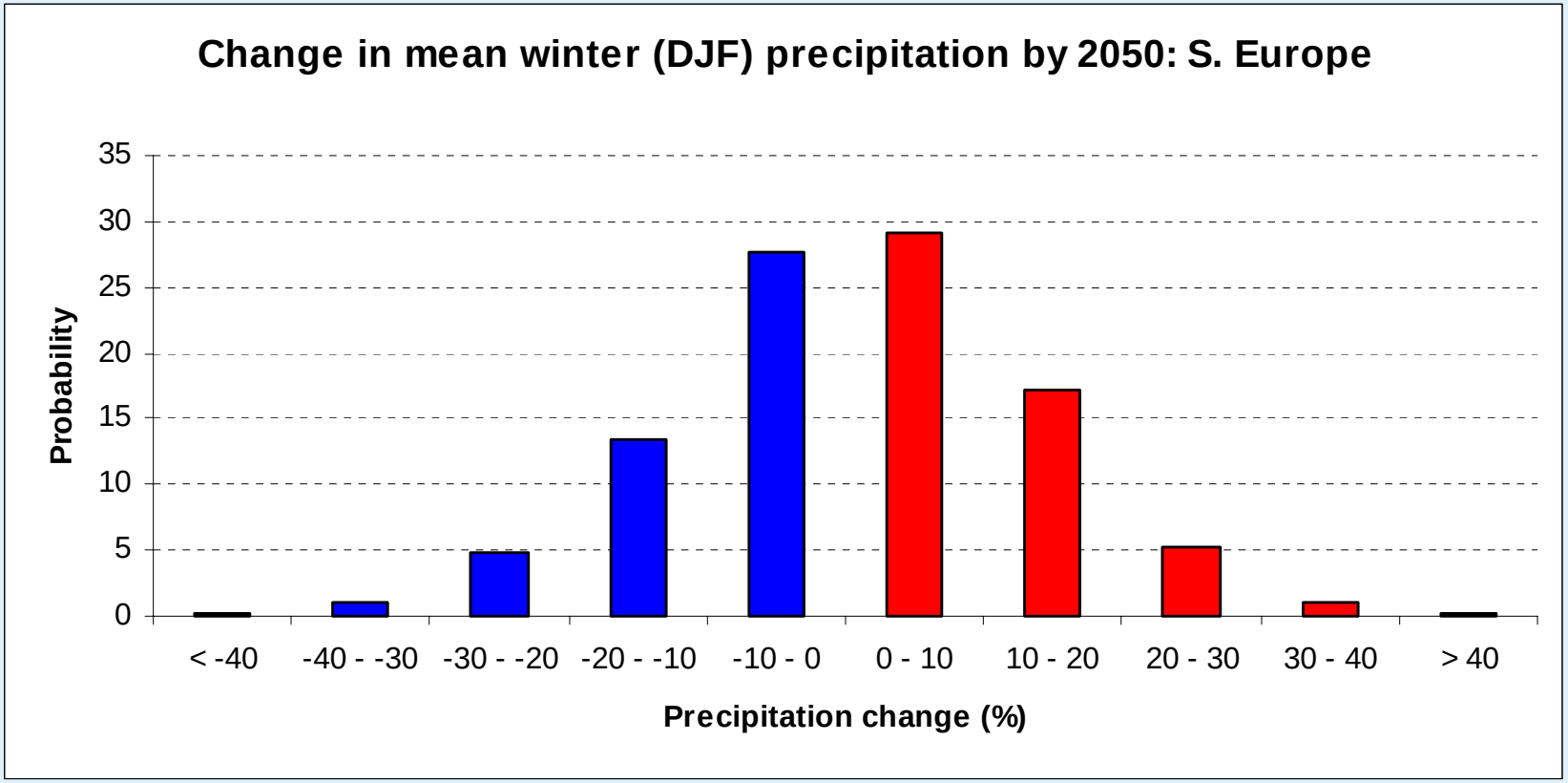


AVEC 1

6.10.2006

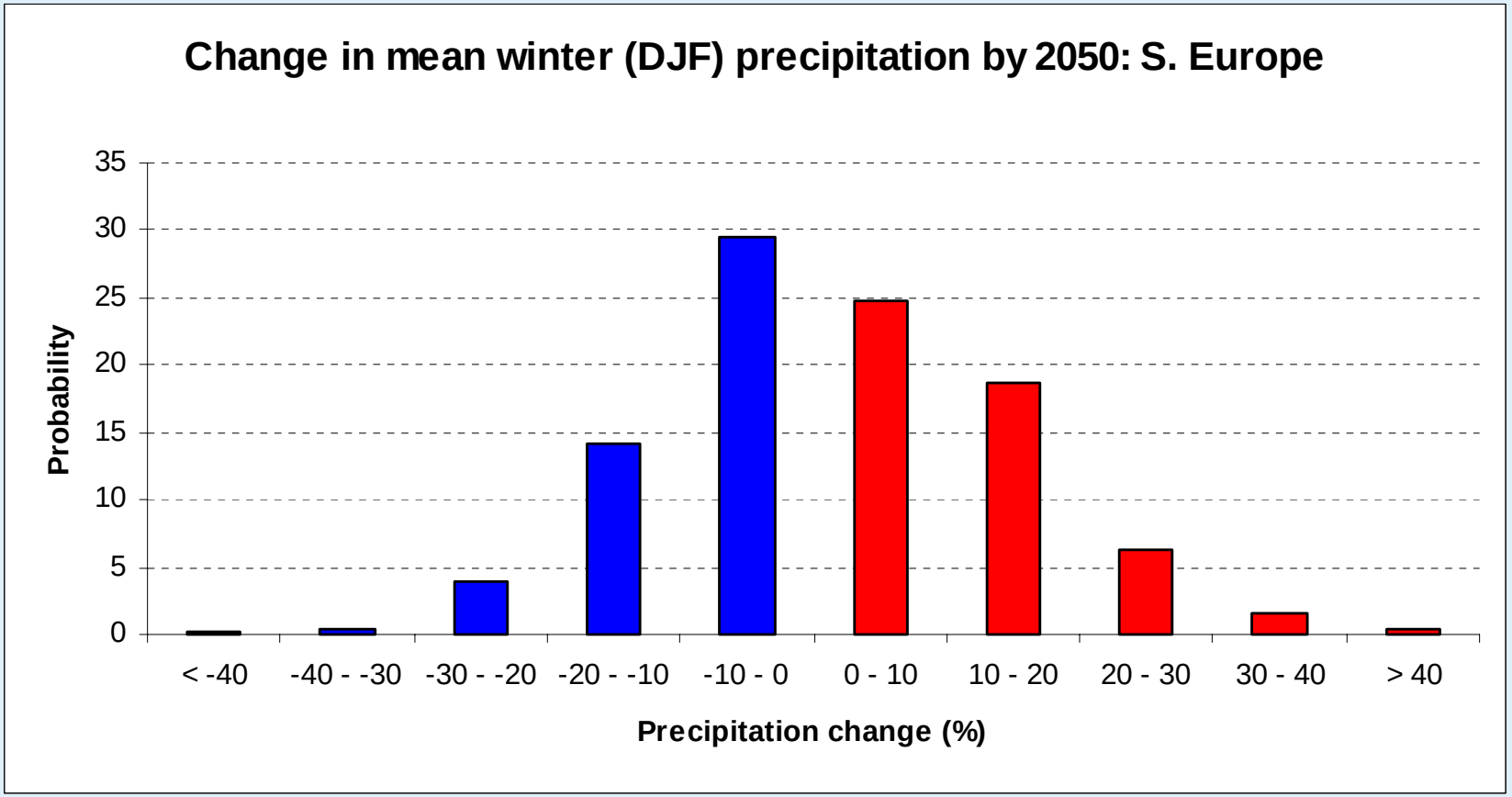
SYKE


Change in mean winter (DJF) precipitation by 2050: S. Europe
Probability
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)


Change in mean winter (DJF) precipitation by 2050: S. Europe
Probability
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

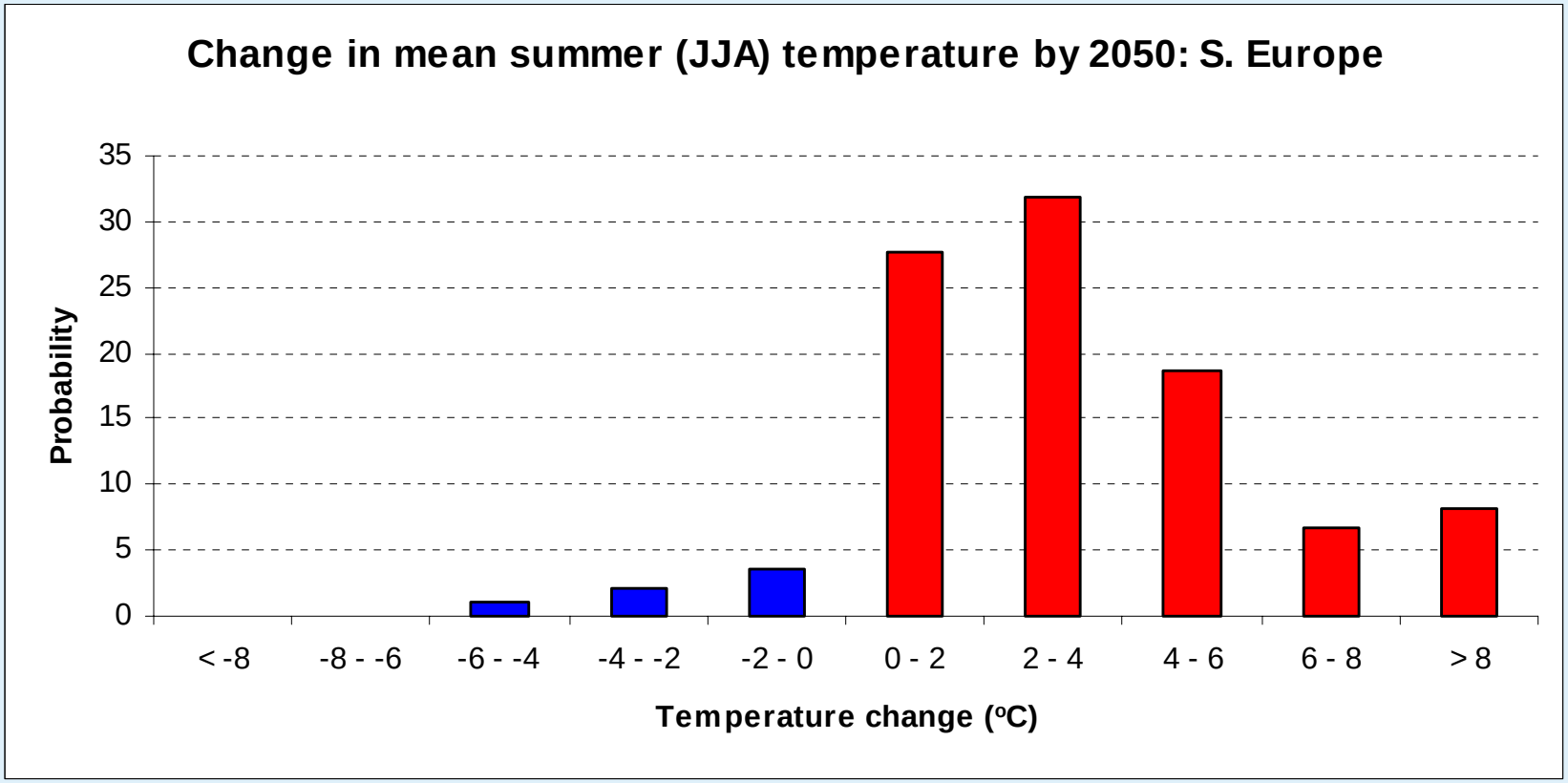
AVEC 2

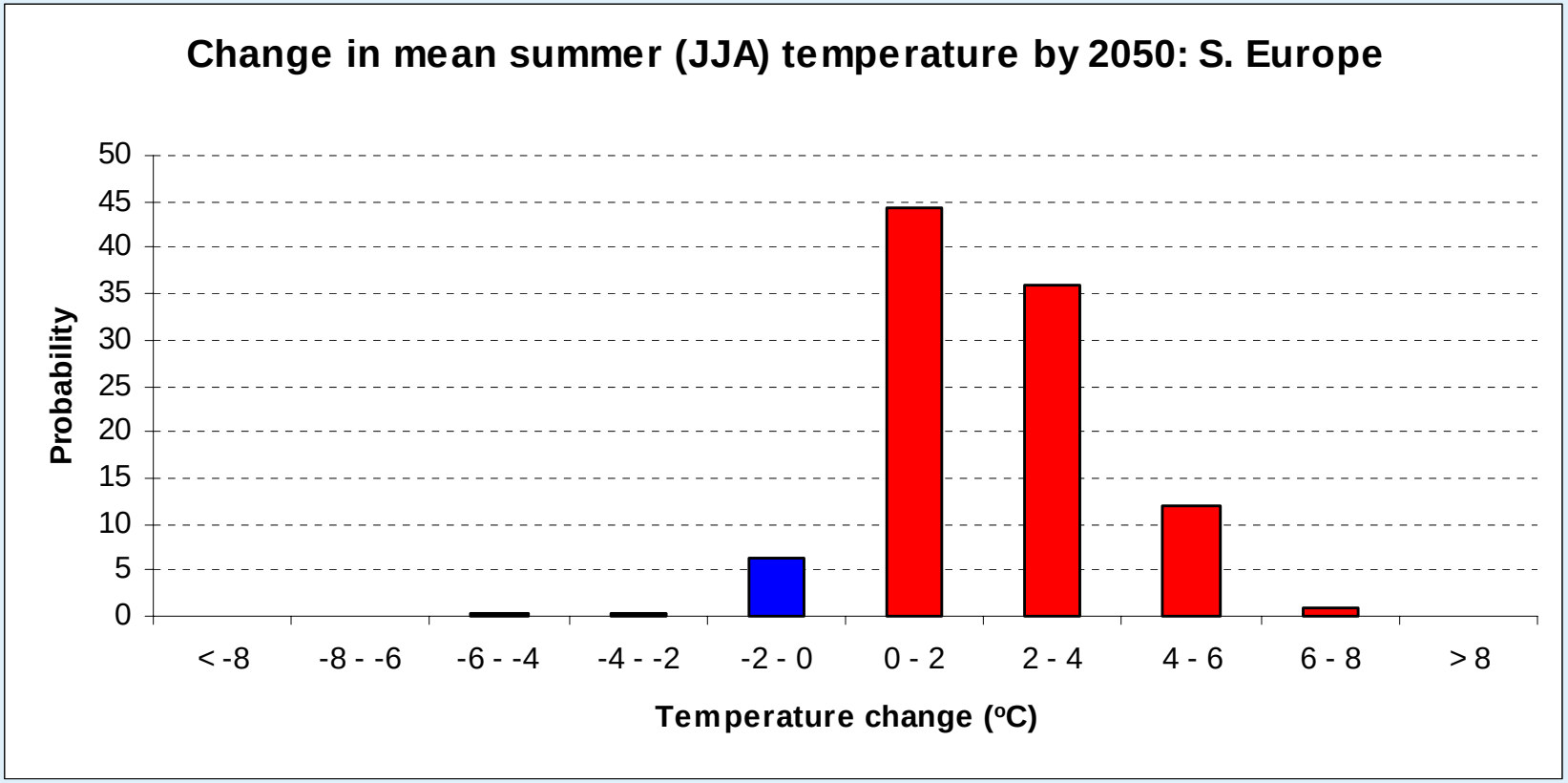
SYKE


Change in mean winter (DJF) precipitation by 2050: S. Europe
Probability
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

AVEC 1

SYKE


Change in mean summer (JJA) temperature by 2050: S. Europe
Probability
35
30
25
20
15
10
5
0
< -8
-8 - -6
-6 - -4
-4 - -2
-2 - 0
0 - 2
2 - 4
4 - 6
6 - 8
> 8
Temperature change (ºC)


Change in mean summer (JJA) temperature by 2050: S. Europe
Probability
50
45
40
35
30
25
20
15
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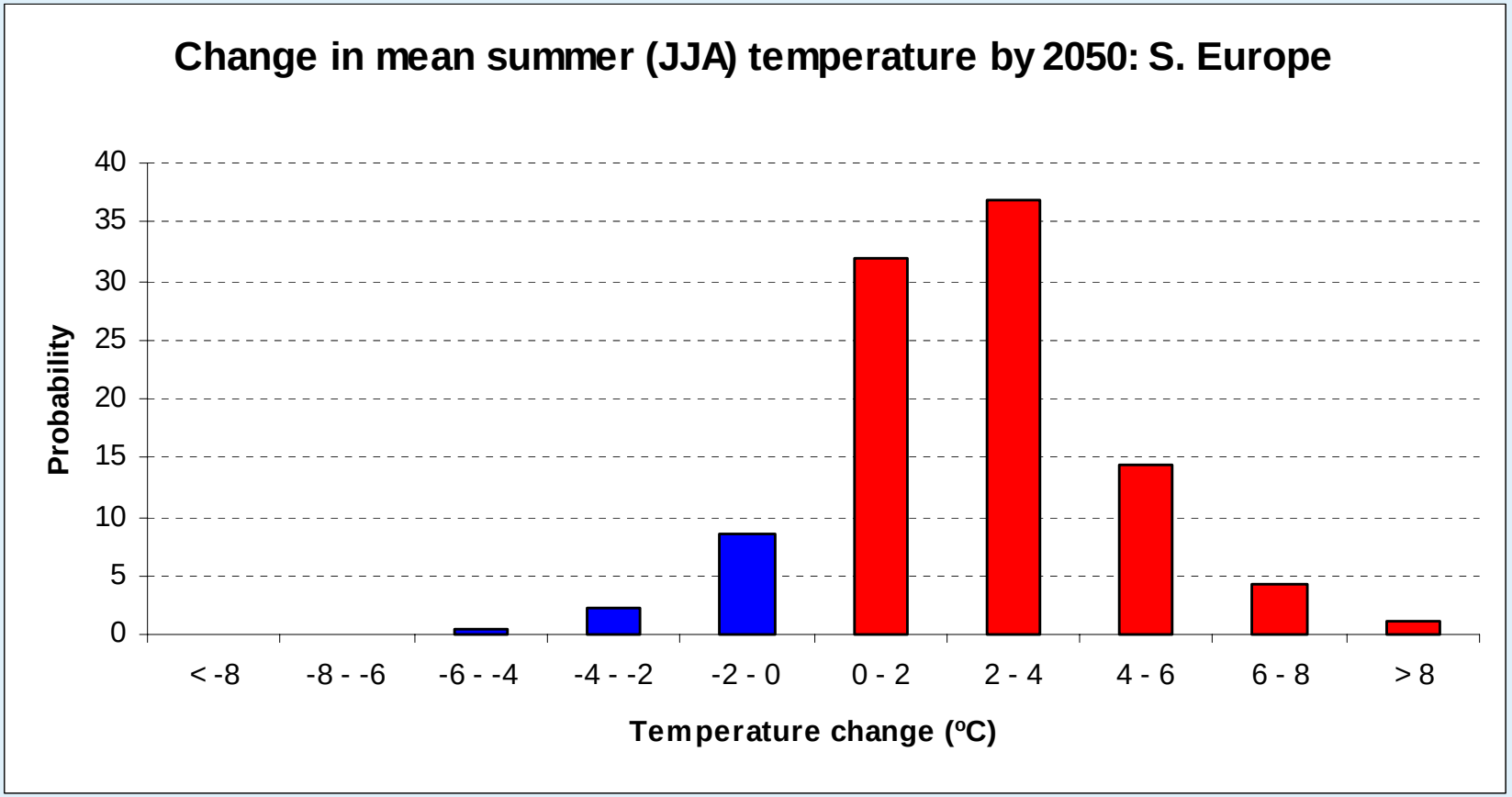
5
0
< -8
-8 - -6
-6 - -4
-4 - -2
-2 - 0
0 - 2
2 - 4
4 - 6
6 - 8
> 8
Temperature change (ºC)

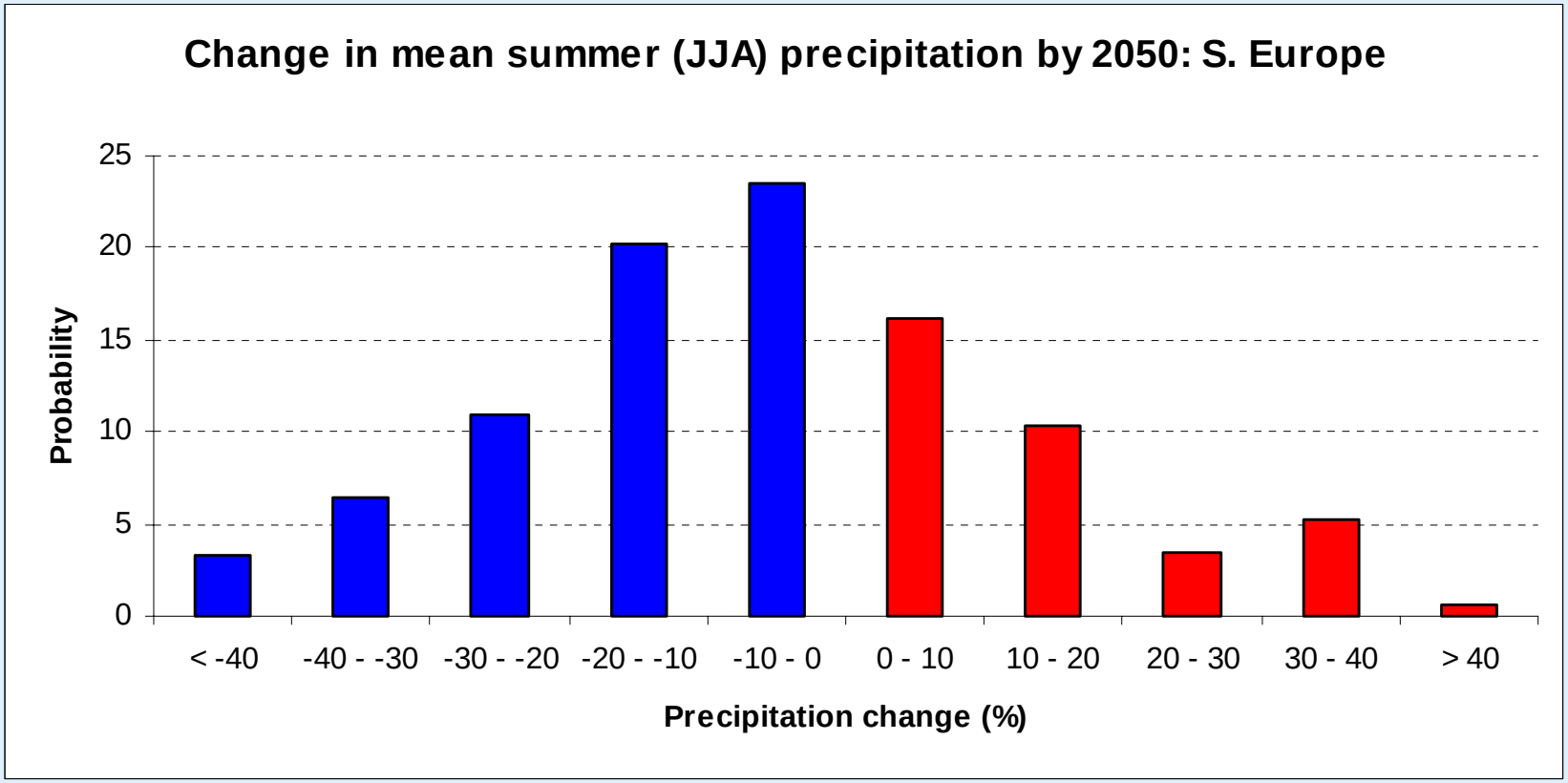
AVEC 2

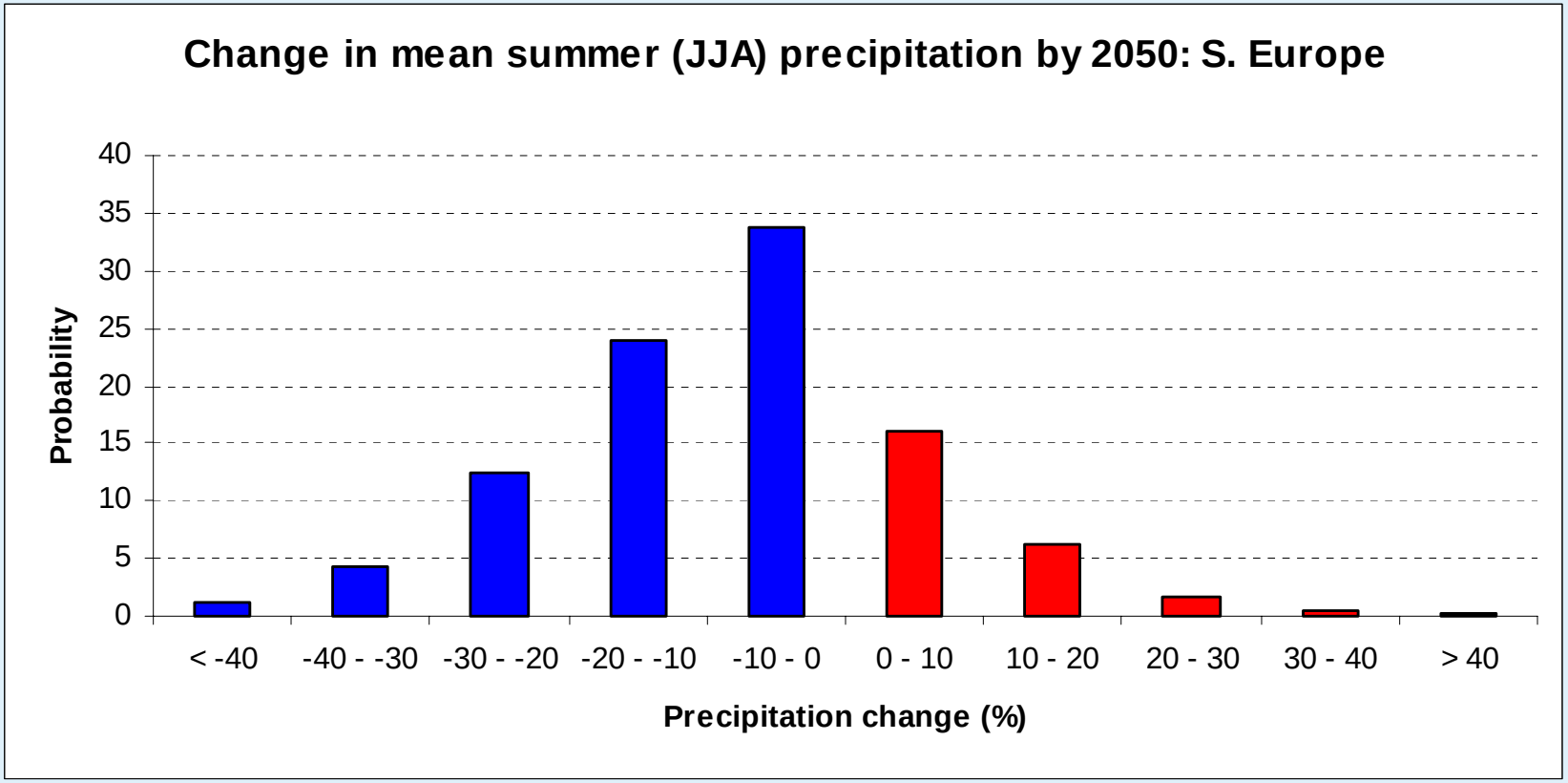
SYKE


Change in mean summer (JJA) temperature by 2050: S. Europe
Probability
40
35
30
25
20
15
10
5
0
< -8
-8 - -6
-6 - -4
-4 - -2
-2 - 0
0 - 2
2 - 4
4 - 6
6 - 8
> 8
Temperature change (ºC)

AVEC 1

SYKE


Change in mean summer (JJA) precipitation by 2050: S. Europe
Probability
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)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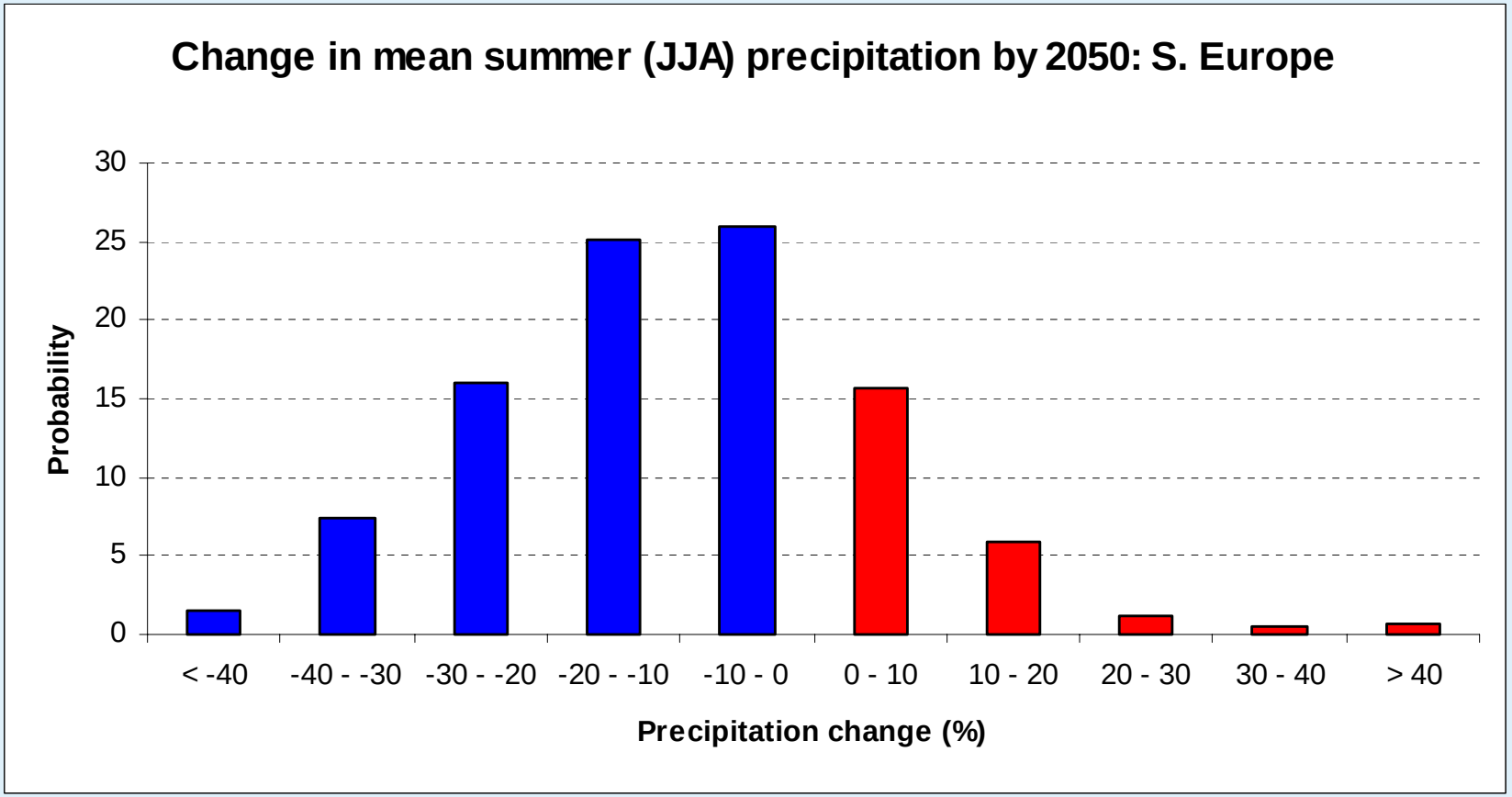
Probability
40
35
30
25
20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

AVEC 2

SYKE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Probability
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20
15
10
5
0
< -40
-40 - -30
-30 - -20
-20 - -10
-10 - 0
0 - 10
10 - 20
20 - 30
30 - 40
> 40
Precipitation change (%)

AVEC 1

SYKE

The End

Data providers: ALTER-Net Summer School participants

Assistant data processors (AVEC 1) : Anne, Rik, Dagmar, Sönke, Mark

Technical confusion: Bill Gates, Tim

Direction: Tim

SYKE