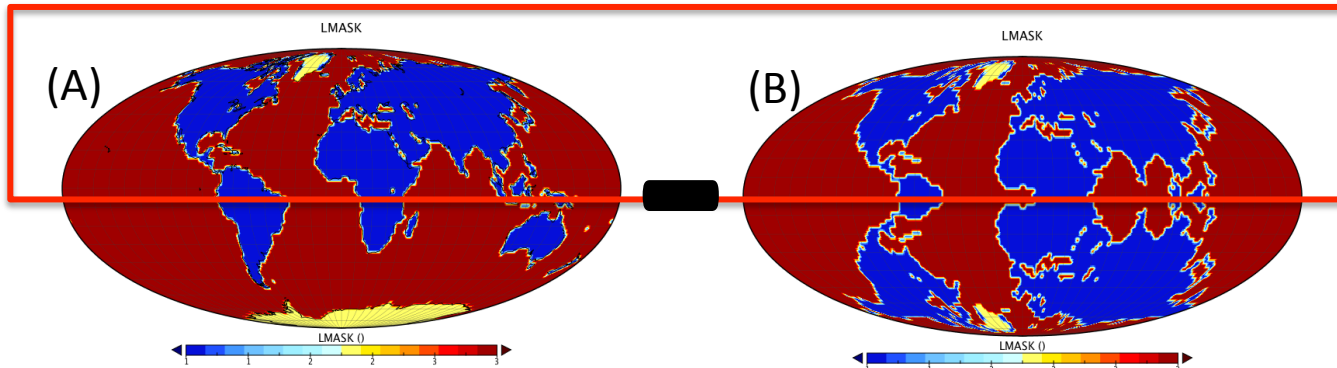


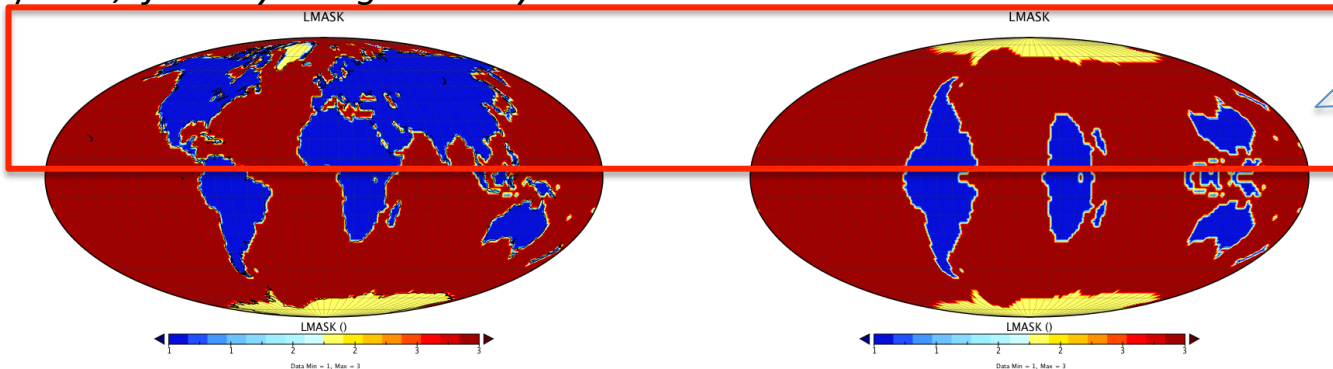
1) To calculate the bias in Northern Hemisphere:  
(i.e. effect of SH land distribution on NH climate response)



Northern Hemisphere  
(Hemisphere being considered) is constant

- Two experiments are run: (A) Real world (B) North-symmetric world
- Climate response in the Northern Hemisphere in (A) and (B) are different.
- This difference in climate response (bias) is caused due to the different land distribution in the Southern Hemisphere in experiments (A) and (B).
- Thus,  $LHB_{NORTH-HEMISPHERE} = \text{climate response of NH in (A)} - \text{climate response of NH in (B)}$

2) Now, if we try using South-symmetric world to calculate the bias in NH:

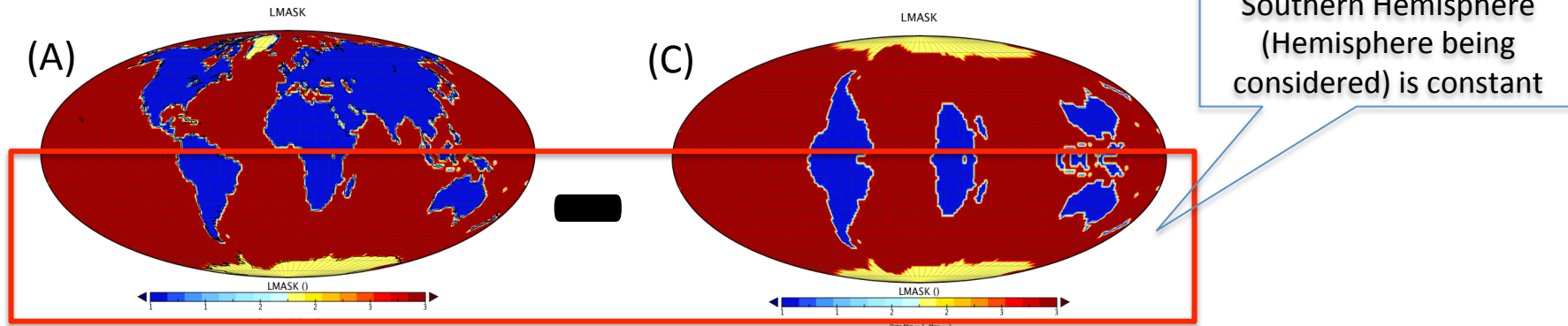


NH is different!  
Hence cannot be used to calculate the  $LHB_{NORTH-HEMISPHERE}$



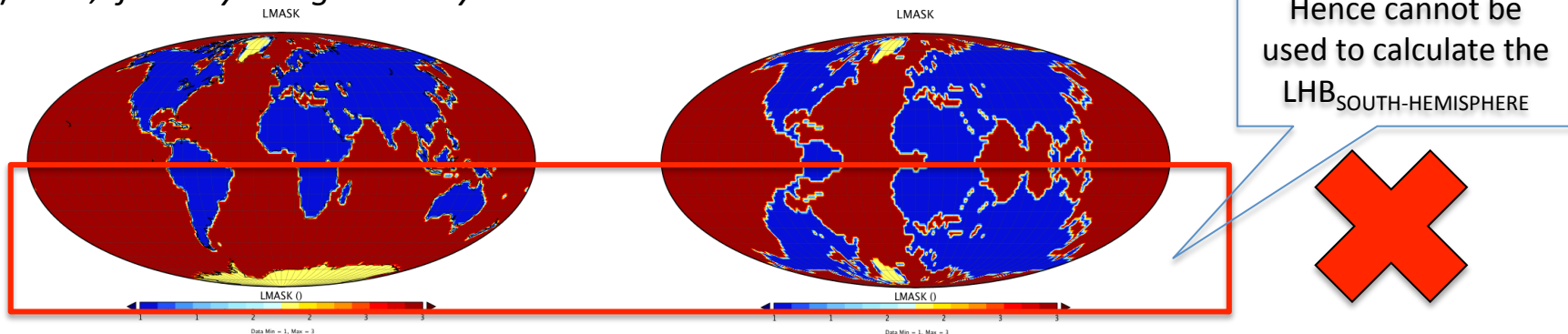
From the above, it should be clear why we cannot use South-symmetric model to calculate the bias for Northern Hemisphere.

2) To calculate the bias in Southern Hemisphere:  
 (i.e. effect of NH land distribution on SH climate response)



- Two experiments are run: (A) Real world (C) South-symmetric world
- Climate response in the Southern Hemisphere in (A) and (C) are different.
- This difference in climate response (bias) is caused due to the different land distribution in the Northern Hemisphere in experiments (A) and (C).
- Thus,  $LHB_{\text{SOUTH-HEMISPHERE}} = \text{climate response of SH in (A)} - \text{climate response of SH in (C)}$

2) Now, if we try using North-symmetric world to calculate the bias in SH:



From the above, it should be clear why we cannot use North-symmetric model to calculate the bias for Southern Hemisphere.