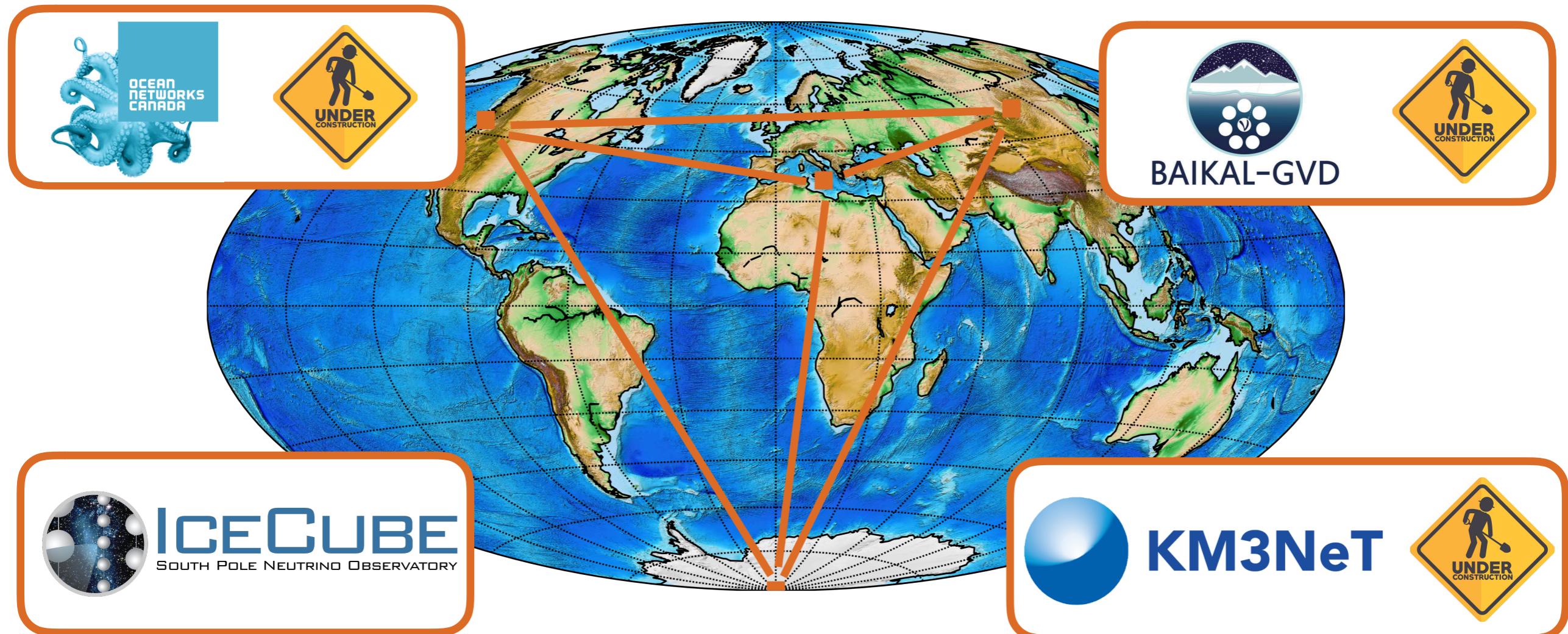




SFB 1258

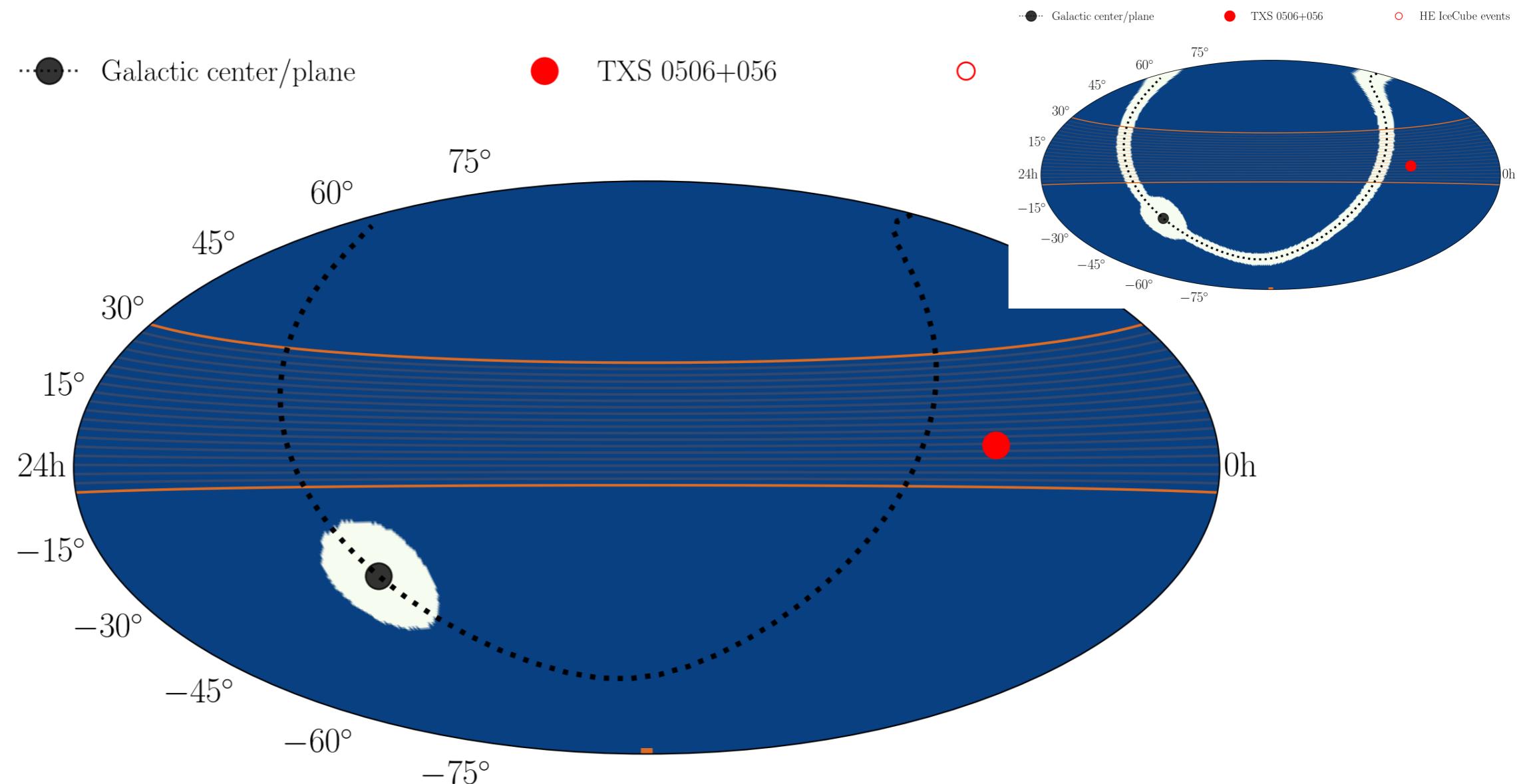
Neutrinos  
Dark Matter  
Messengers

# A path towards a global neutrino telescope network



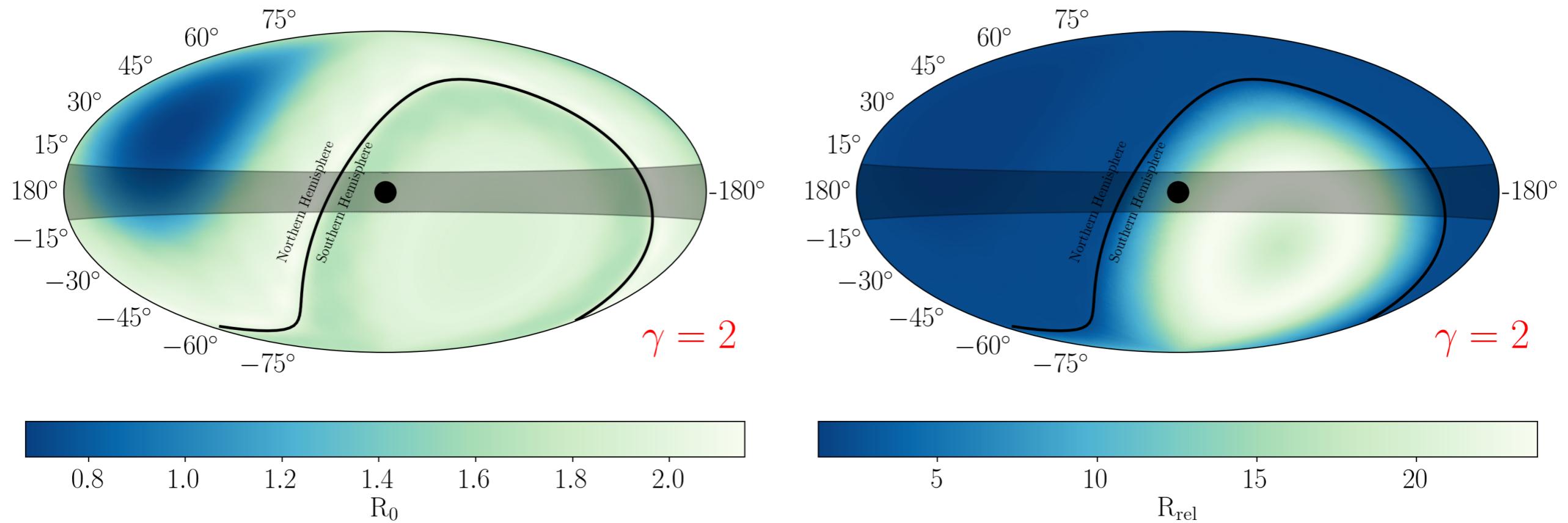
# Toy study to evaluate potential for template analysis

or, e.g. gc + gp



Random definition of a galactic center spatial template

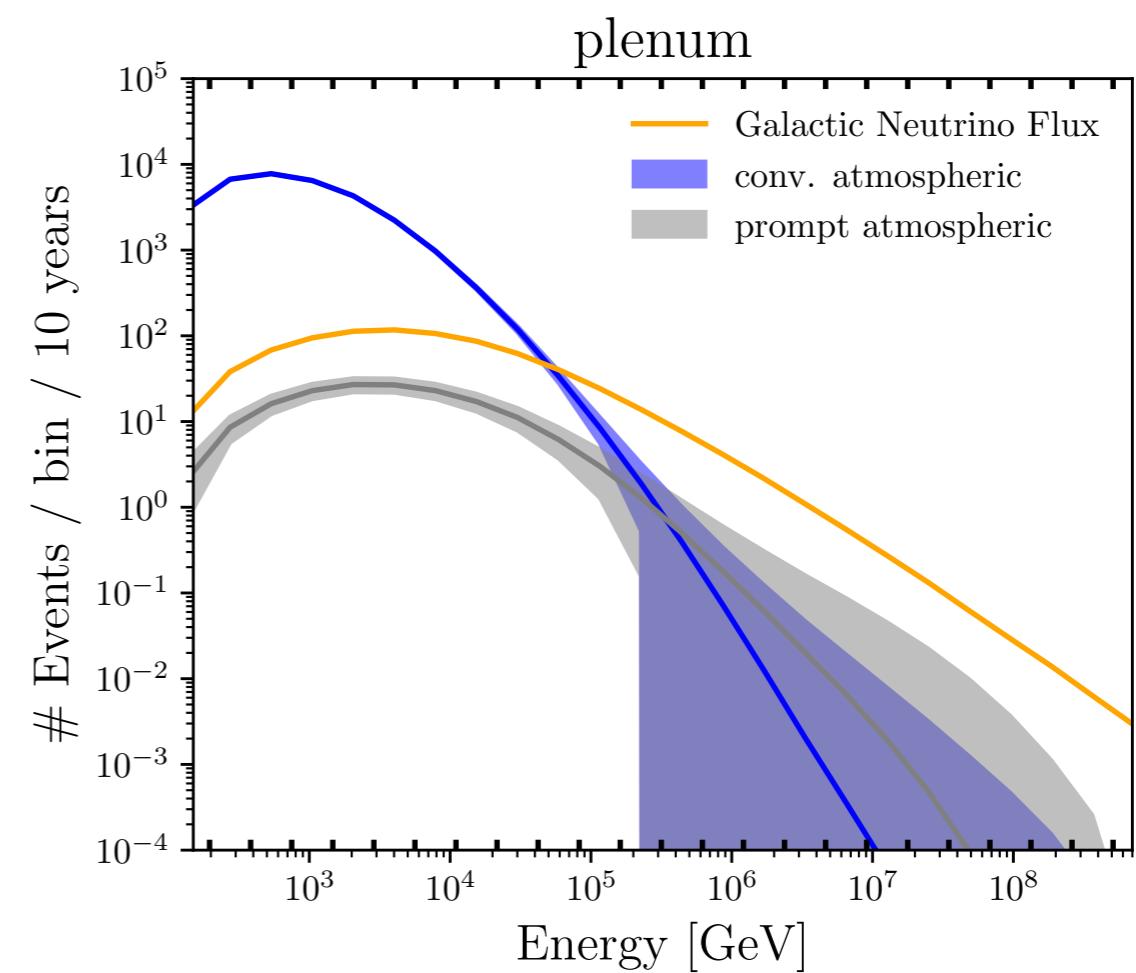
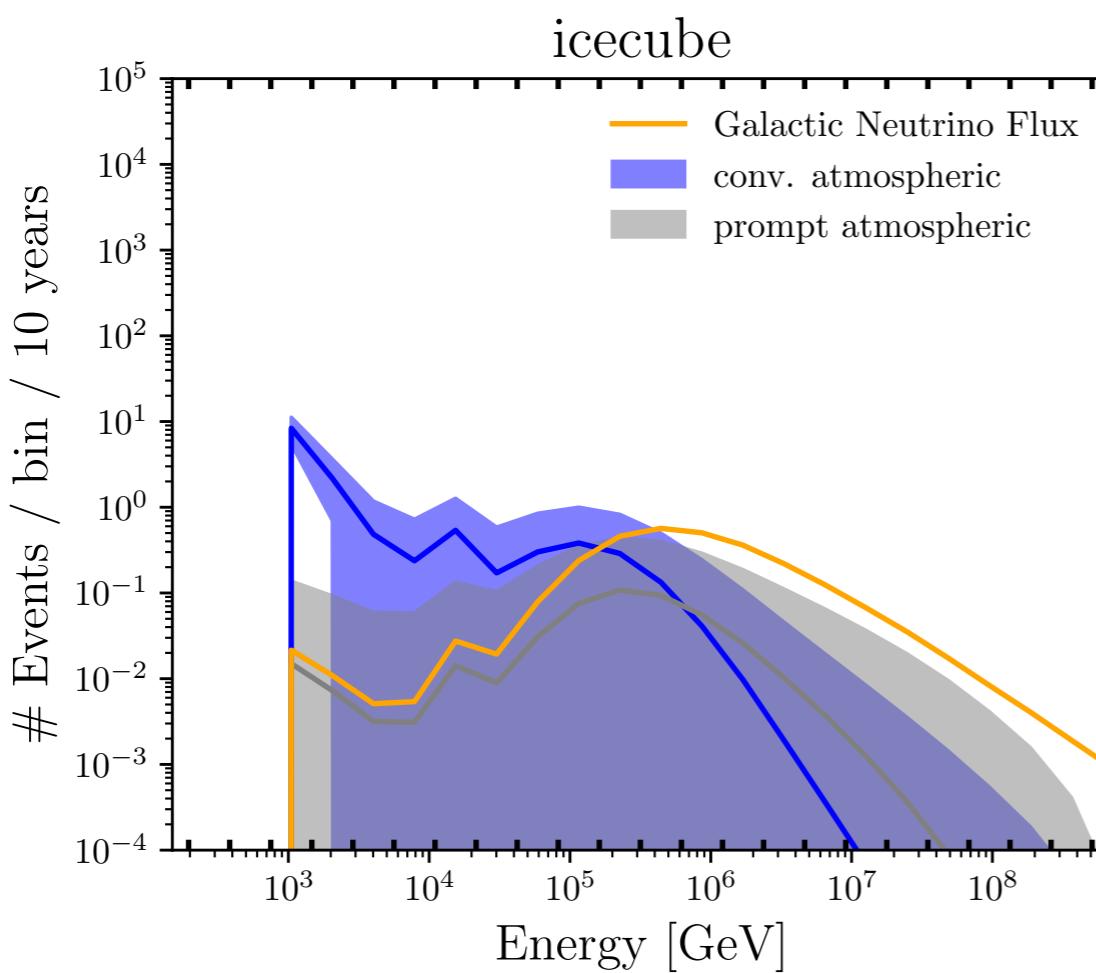
# Reminder



- emphasises the improvement at the galactic center and large parts of the galactic plane

# Expected event numbers from template

- Using the effective areas of icecube and plenum we can calculate the expected number of background/signal events
- Background rate calculated with MCEq
- Random signal assumption used in this plot



# Likelihood ratio test based on binned poisson llh (diffuse style analysis)

$$\mathcal{L} = \prod_i \frac{(\lambda_b^i + \lambda_s^i)^{k_i}}{k_i!} e^{-(\lambda_b^i + \lambda_s^i)}$$

$\lambda_b^i$  : bckg expectation in energy bin i

$\lambda_s^i$  : signal expectation in energy bin i

$$\Lambda = \max_{\phi_0, \gamma} 2 \sum_i \left[ k_i \log \left( 1 + \frac{\lambda_s^i(\phi_0, \gamma)}{\lambda_b^i} \right) - \lambda_s^i(\phi_0, \gamma) \right]$$

# Fluxes that would yield a 5sigma discovery at 50% C.L.

Here i assumed a single unbroken power-law distributed uniformly on the template

