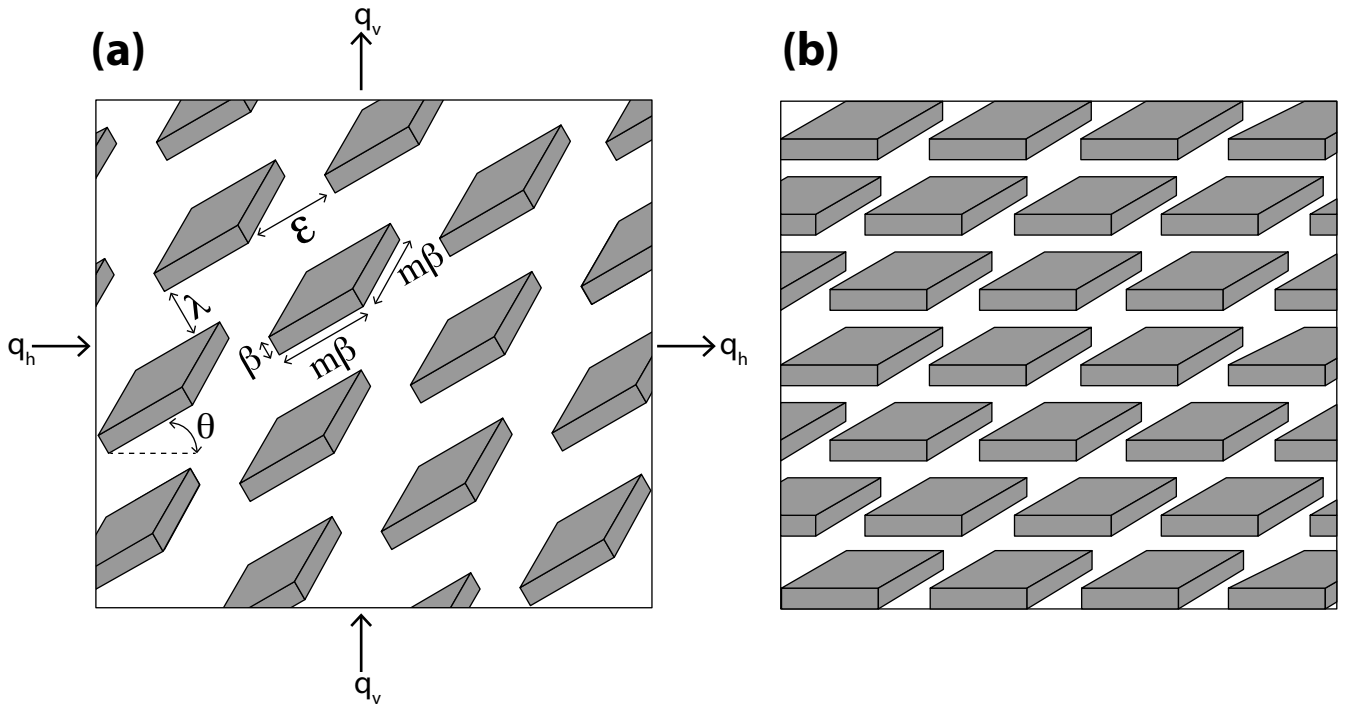
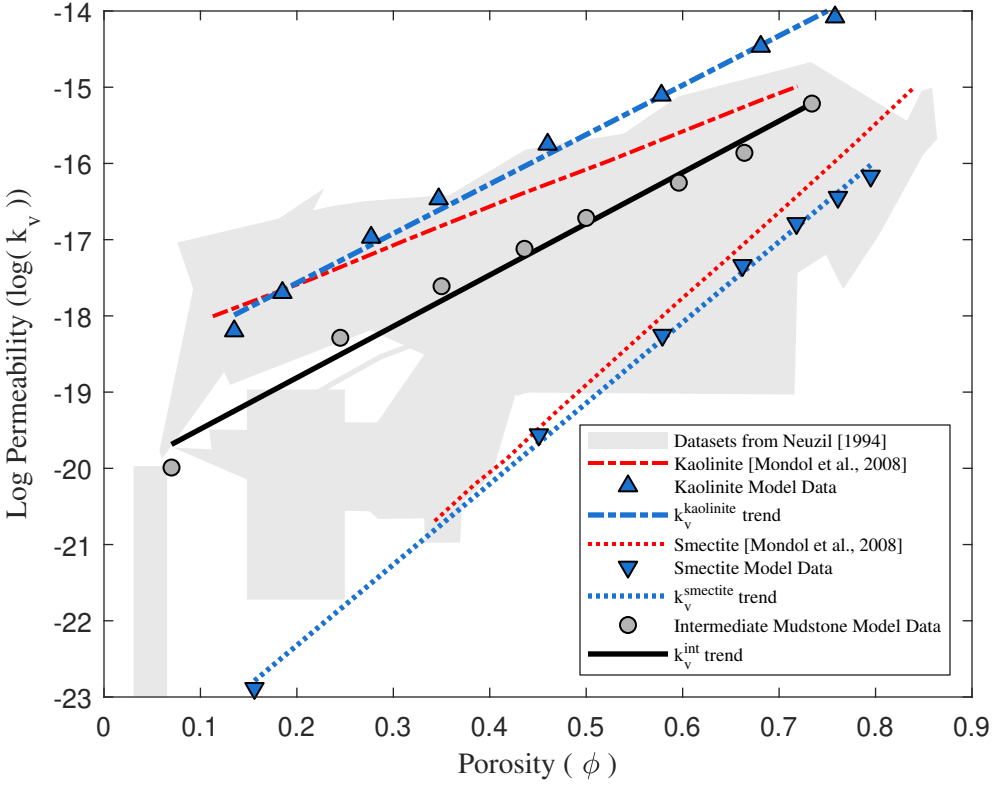
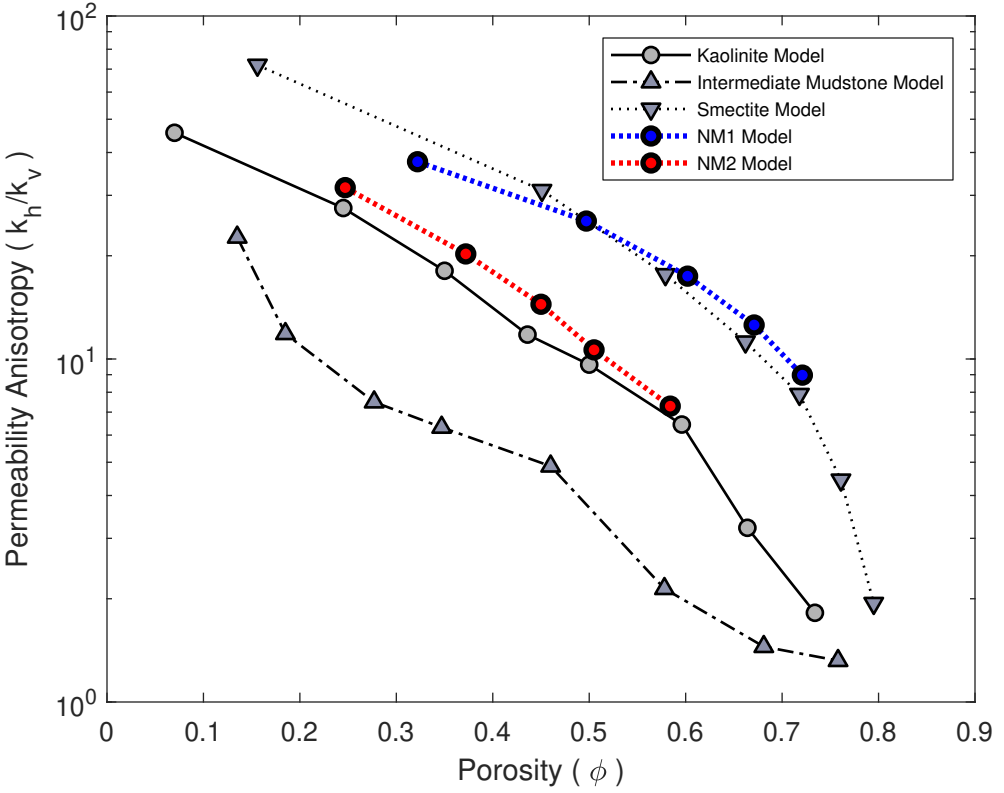
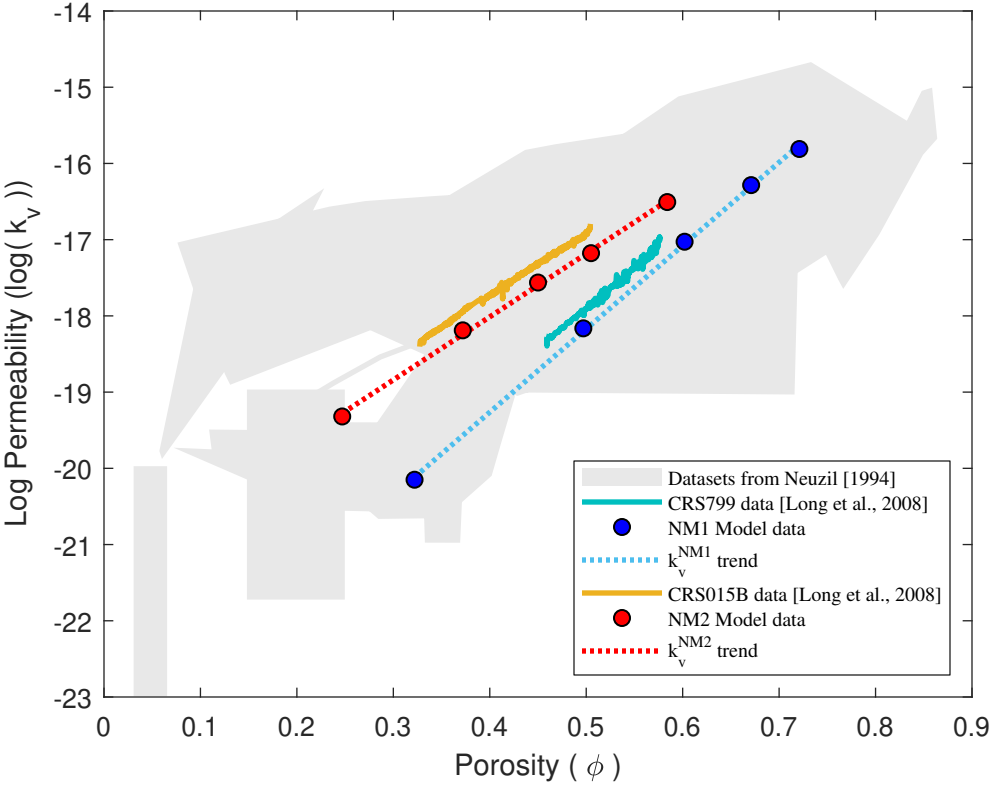
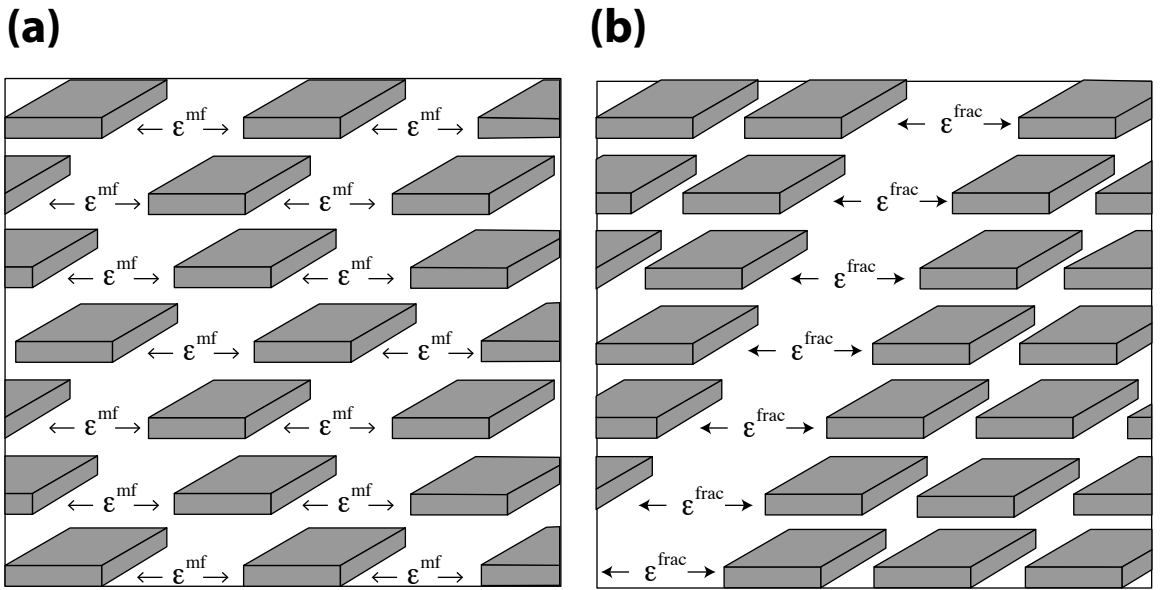
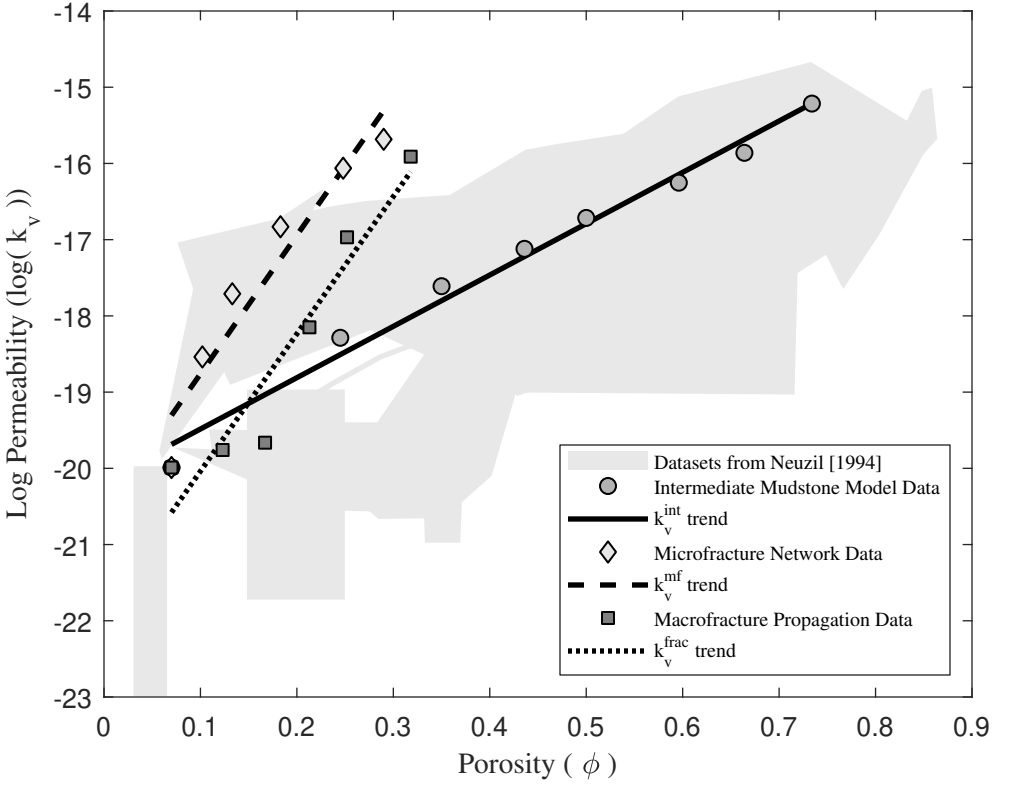

(a)
(b)
q_v
q_h
q_h
q_v
ε
λ
β
mβ
mβ
θ


-14
-15
-16
-17
-18
-19
-20
-21
-22
-23
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Log Permeability (log(k_v))
Porosity (ϕ)
Datasets from Neuzil [1994]
Kaolinite [Mondol et al., 2008]
Kaolinite Model Data
k_v^kaolinite trend
Smectite [Mondol et al., 2008]
Smectite Model Data
k_v^smectite trend
Intermediate Mudstone Model Data
k_v^int trend


Kaolinite Model
Intermediate Mudstone Model
Smectite Model
NM1 Model
NM2 Model
Permeability Anisotropy (k_h/k_v)
Porosity (ϕ)
10^2
10^1
10^0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9


Log Permeability (log(k_v))
-14
-15
-16
-17
-18
-19
-20
-21
-22
-23
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Porosity (ϕ)
Datasets from Neuzil [1994]
CRS799 data [Long et al., 2008]
NM1 Model data
k_v^{NM1} trend
CRS015B data [Long et al., 2008]
NM2 Model data
k_v^{NM2} trend


(a)
(b)
ε mf
ε frac


-14
-15
-16
-17
-18
-19
-20
-21
-22
-23
Log Permeability (log(k_v))
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Porosity (ϕ)
Datasets from Neuzil [1994]
Intermediate Mudstone Model Data
k_v^{int} trend
Microfracture Network Data
k_v^{mf} trend
Macrofracture Propagation Data
k_v^{frac} trend