

EXPERIMENTOS COM ESQUEMAS DE CONVECÇÃO E UMIDADE NO SOLO DURANTE O PERÍODO DO SALLJEX

J. Roberto Rozante

rozante@cptec.inpe.br

Iracema F. A. Cavalcanti

iracema@cptec.inpe.br

EXPERIMENTOS:

_ Convecção:

Kain-Fritsch X Betts-Miller: (objetivo não foi ajustar parâmetros), mas sim identificar qual dos esquemas consegue representar melhor o regime de precipitação na região de interesse do estudo durante o período do experimento do SALLJEX e em alguns casos de complexos convectivos.

_ Umidade do Solo:

Umidade Climatológica (Willmott et al.(1985))

Umidade Estimada (Gevaerd e Freitas (2003)) : estimativa de prec. Via satélite aplicada ao modelo hidrológico (McCumber e Pielke 1981).

OBJETIVOS

_ Validar os esquemas de convecção de Betts-Miller e Kain-Fritsch e analisar os impactos da utilização de condições de umidade do solo “mais realísticas” durante o período do experimento SALLJEX

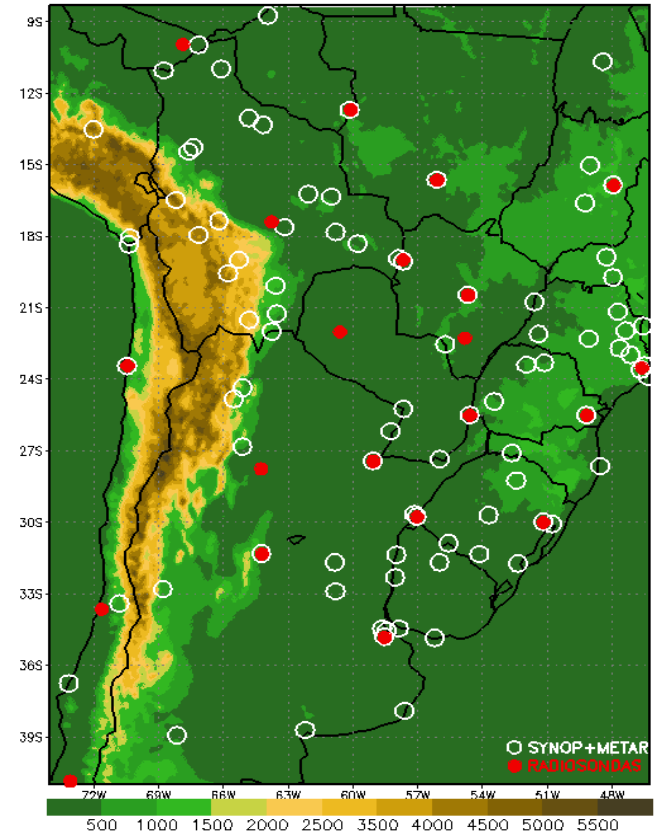
MODELO

- _ Eta workstation
- _ Integração: 72 horas
- _ Modo: Hidrostático
- _ Resolução: 10km e 38 níveis
- _ Convecção: Betts Miller e Kain-Fritsch
- _ CIs e CCs: T254L42 (SALLJEX)
e T386L64 (casos)

METODOLOGIA

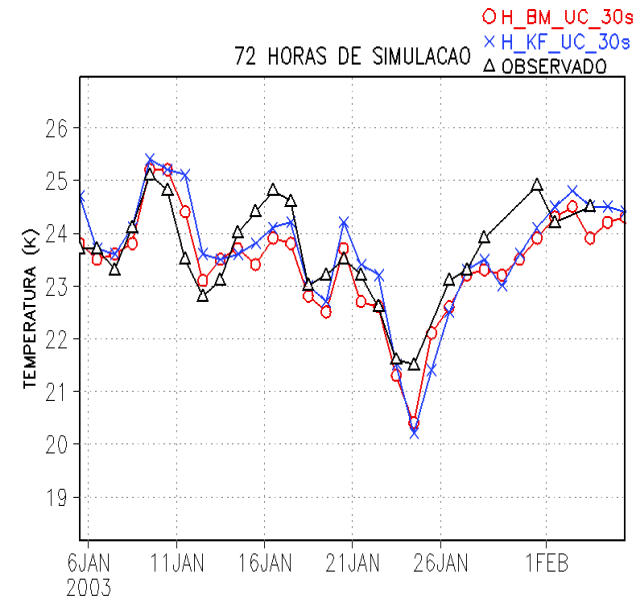
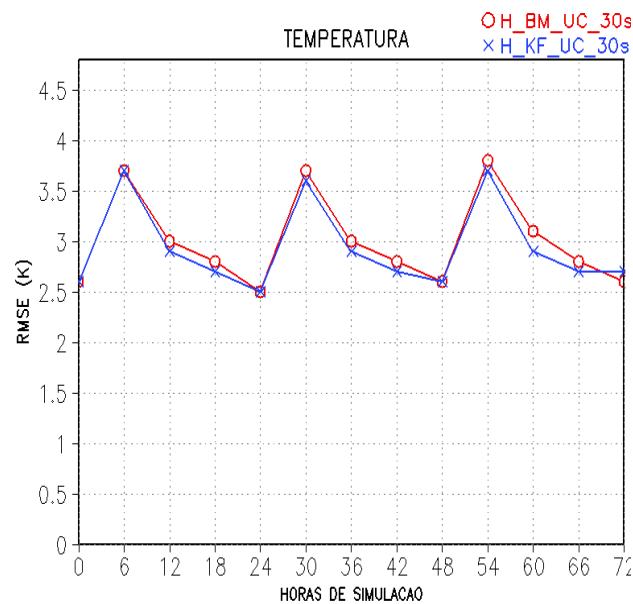
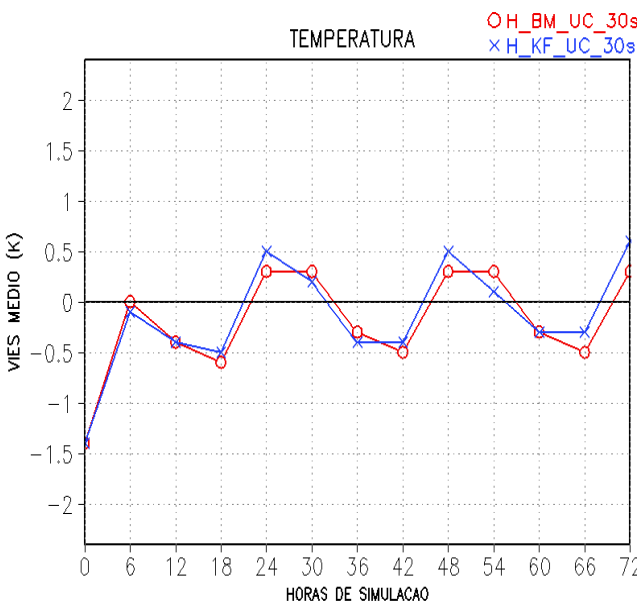
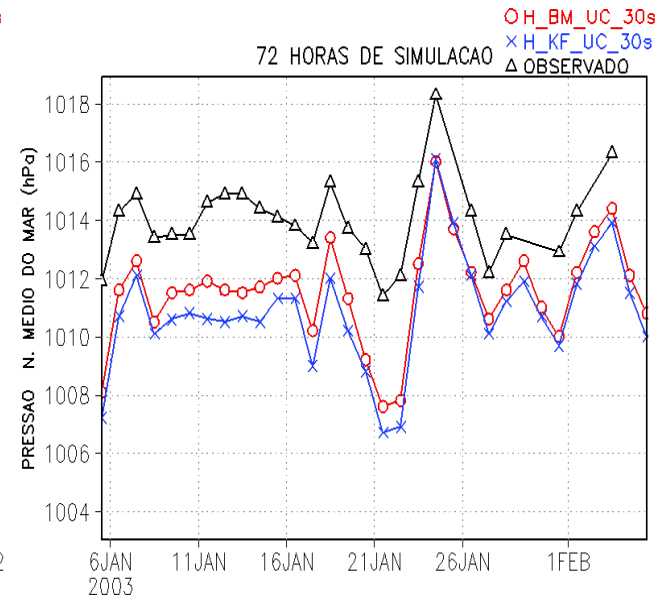
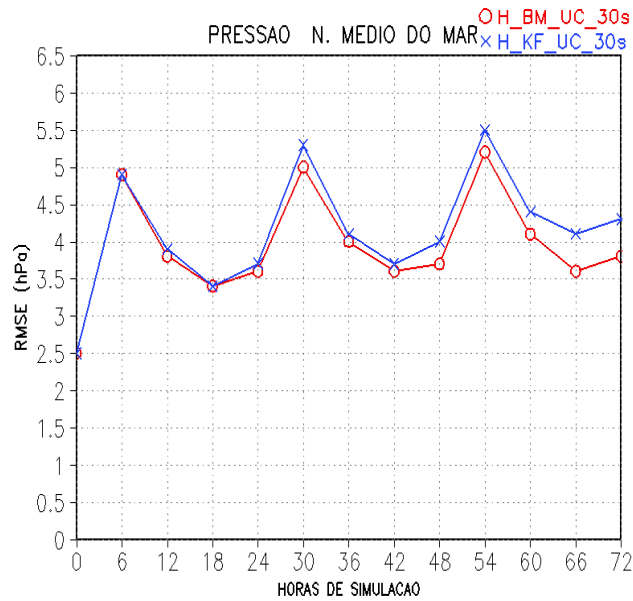
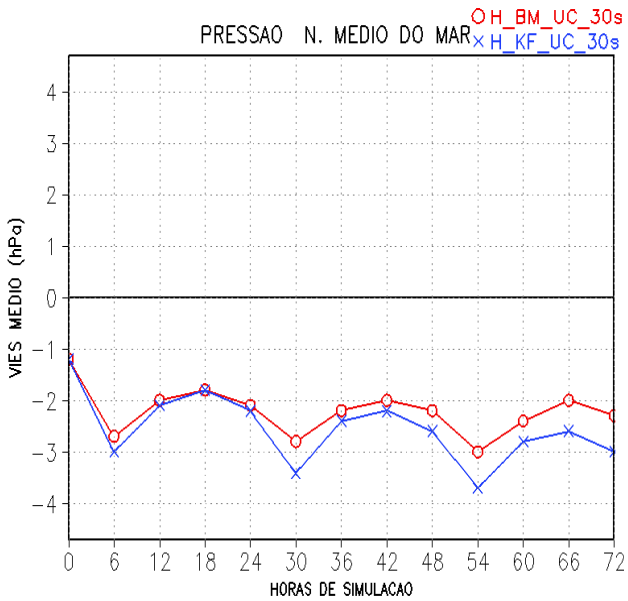
- _ Período utilizado (01/01/03 à 03/02/2003) (SALLJEX)
- _ 4 Casos de CCMs
- _ BIAS, ETS, POD, RAF (precipitação)
- _ VIÉS , RMS (T, TD, U, V, P)

DISTRIBUICAO ESPACIAL DAS ESTACOES
E TOPOGRAFIA DO MODELO



ESQUEMA DE CONVECÇÃO

BM x KF



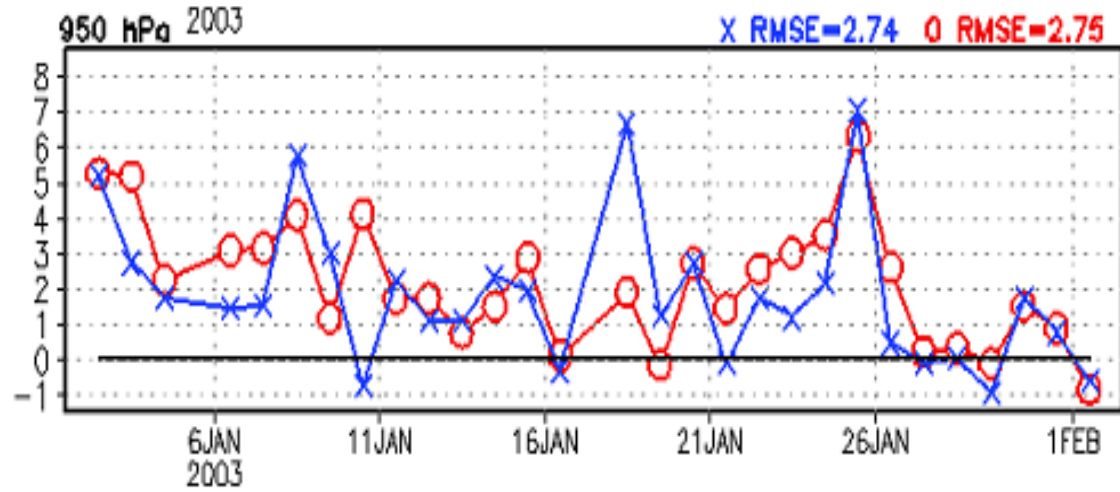
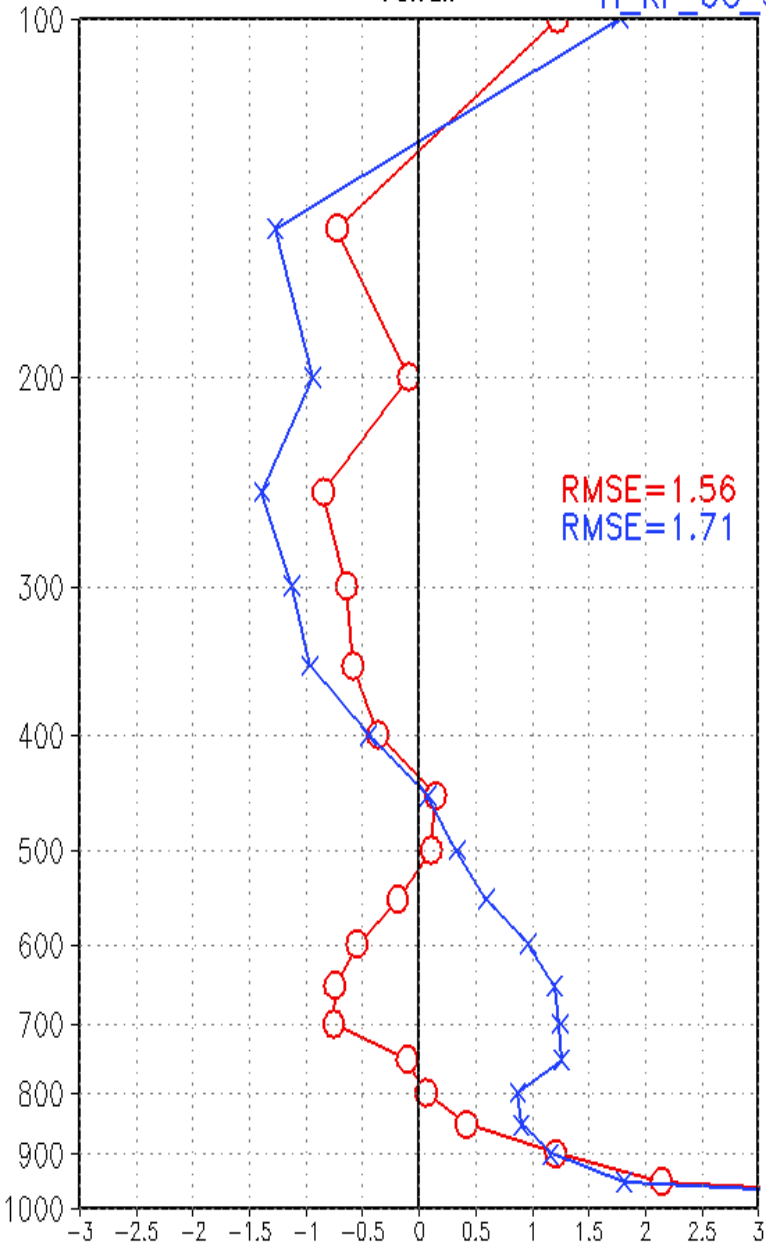
BM x KF

Porto Alegre

Temperatura
FCT72h

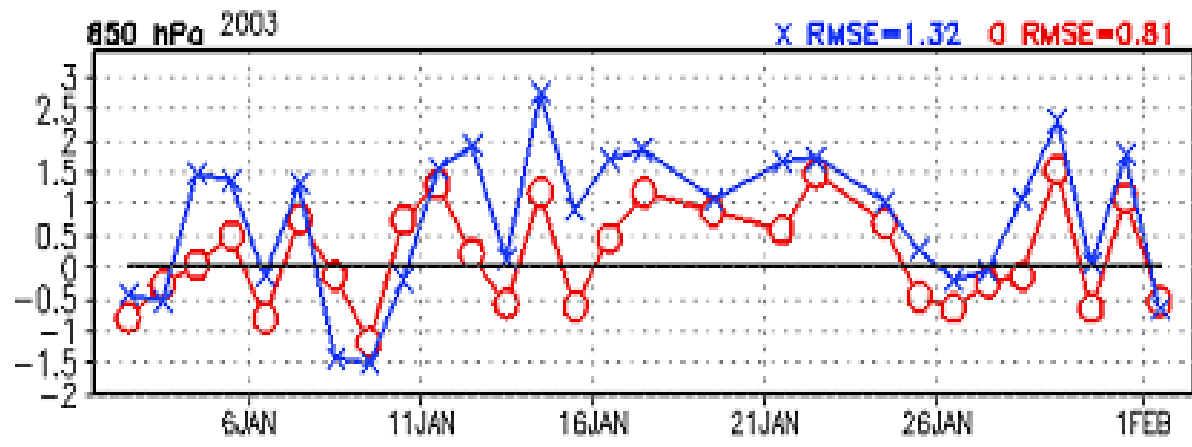
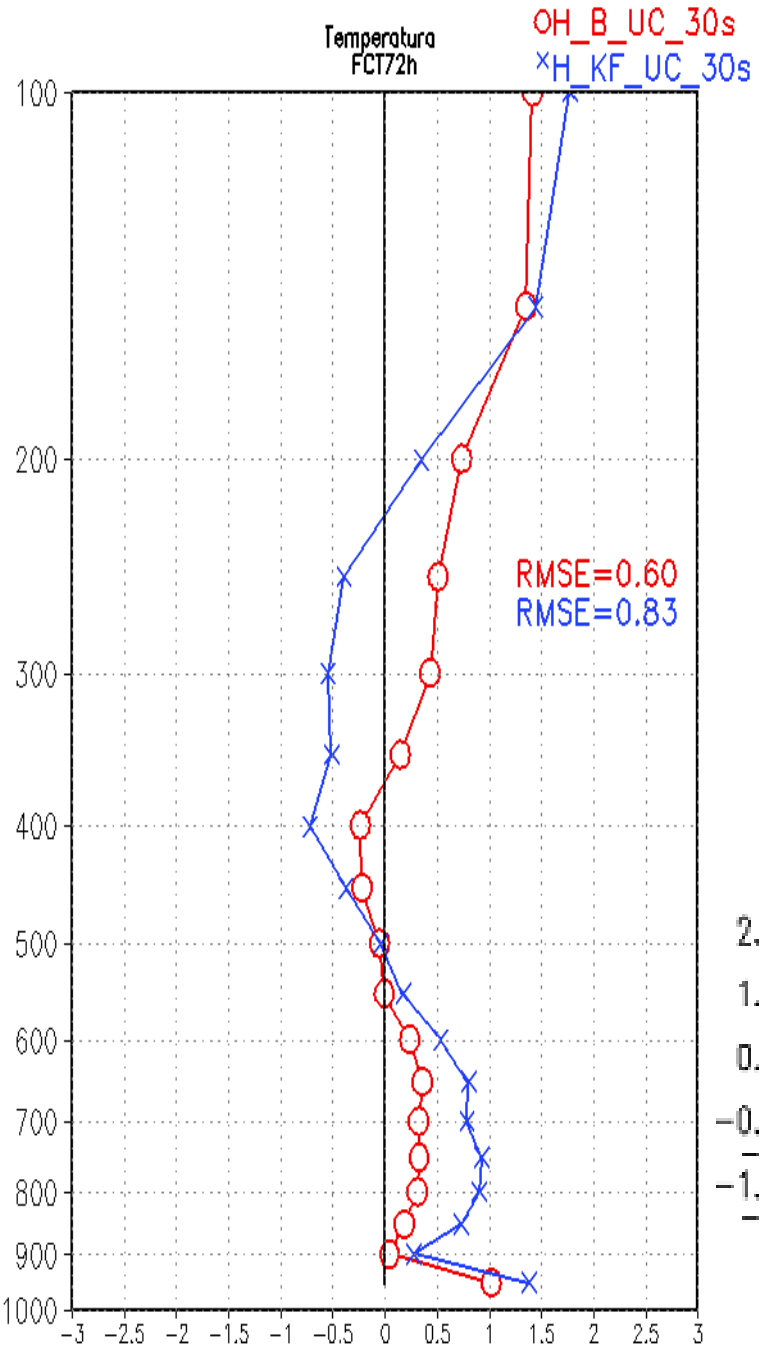
OH_B_UC_30s
xH_KF_UC_30s

RMSE=1.56
RMSE=1.71

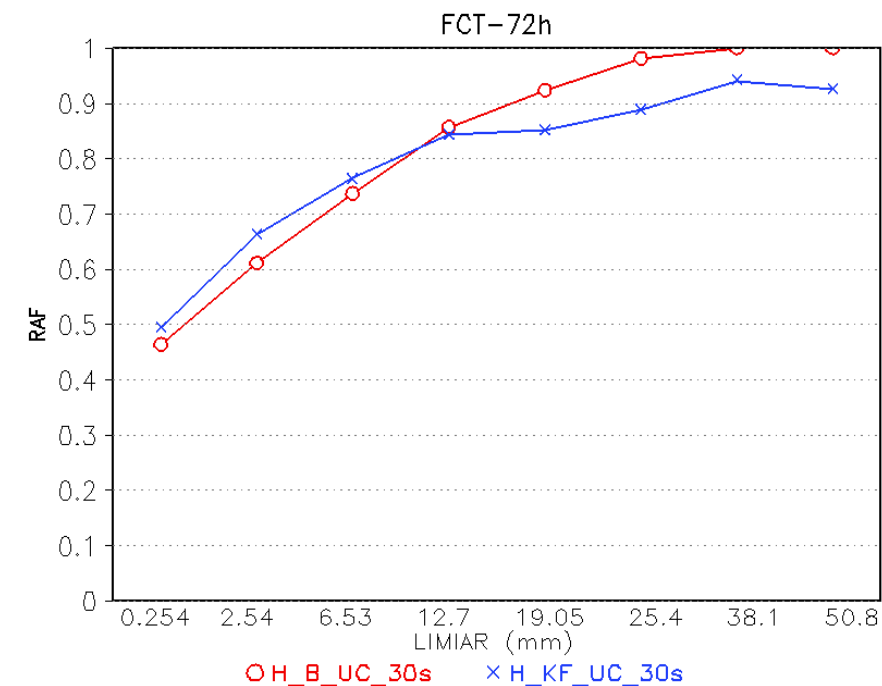
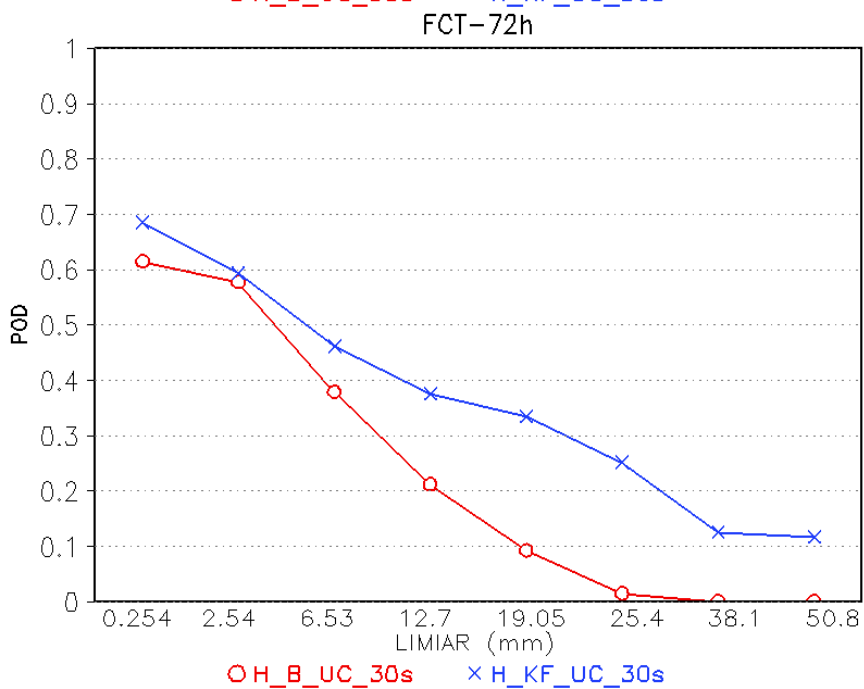
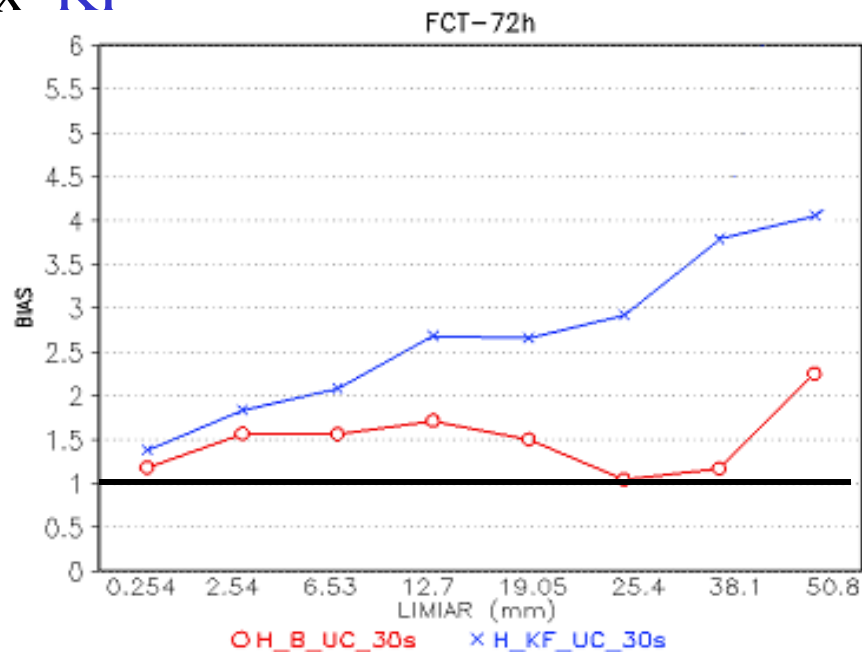
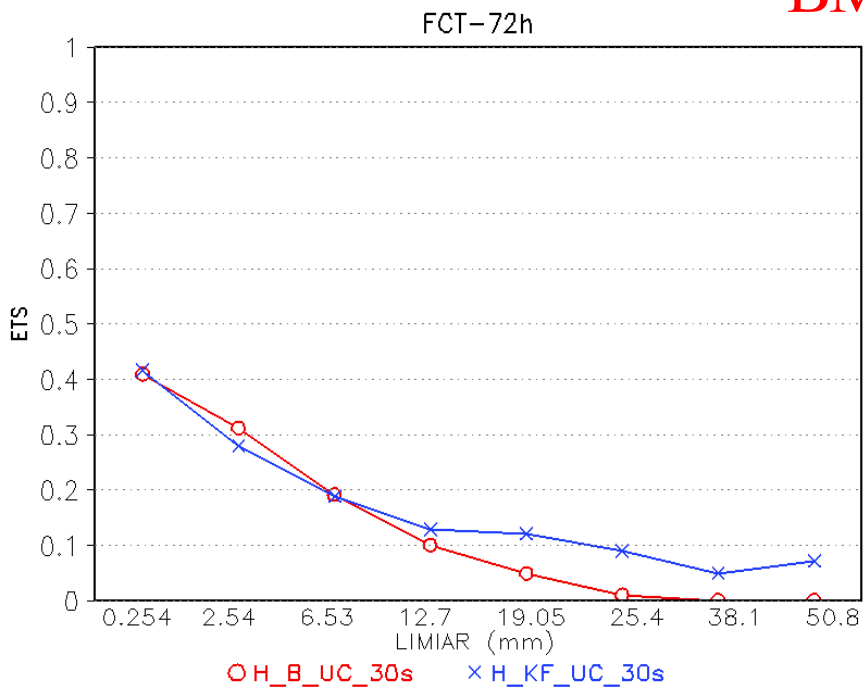


BM x KF

Cuiabá



BM x KF



BM x KF

Media área 35S-20S 67.5W-55W

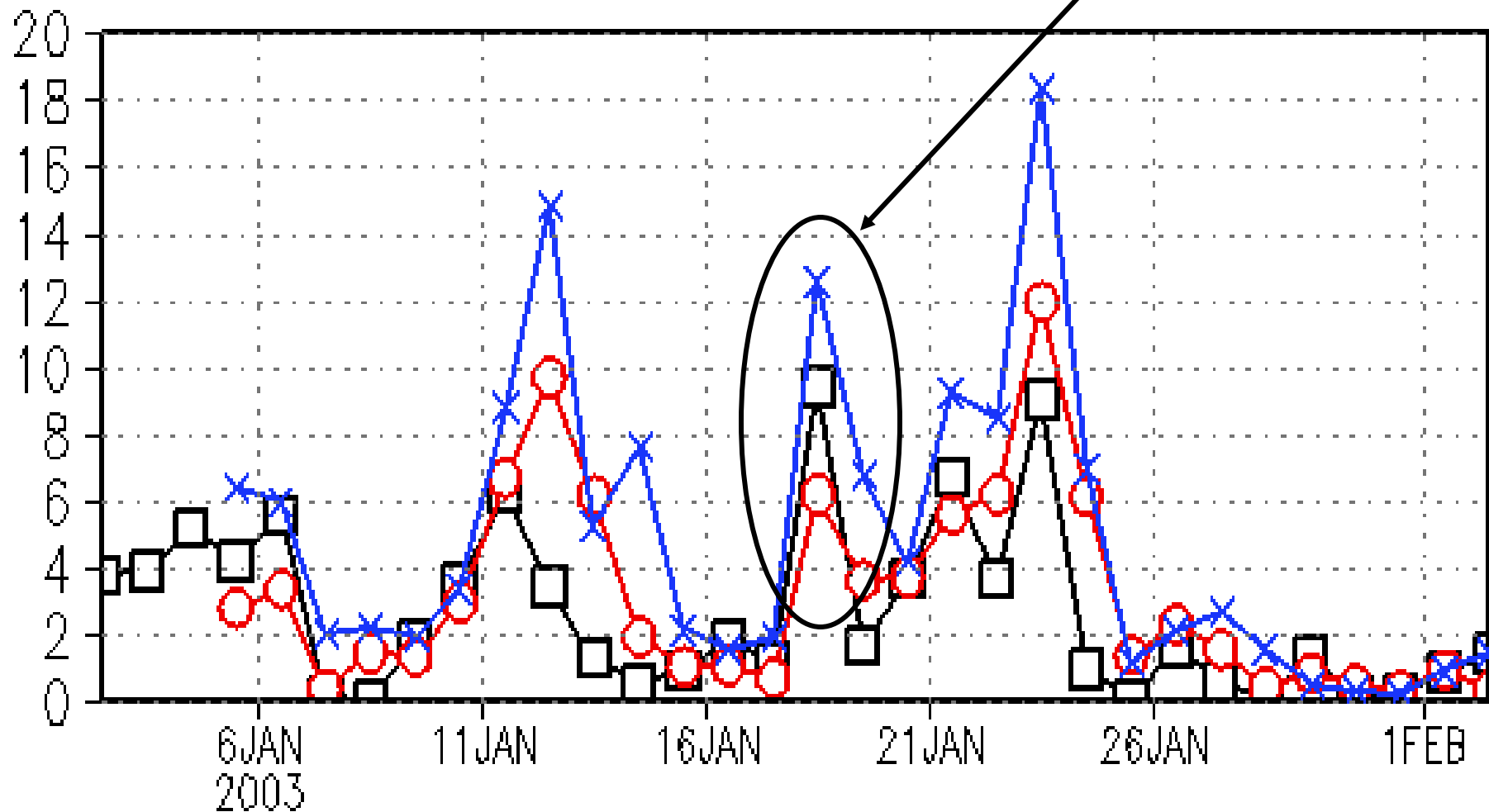
CCM-18/01/03

Precipitacao (mm)

□ OBSERVADO

○ H_B_UC_30s

x H_KF_UC_30s



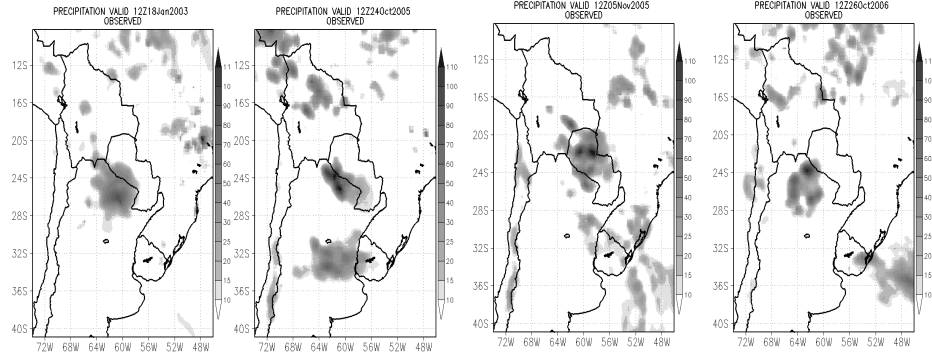
COMPOSTOS

18/jan/2003

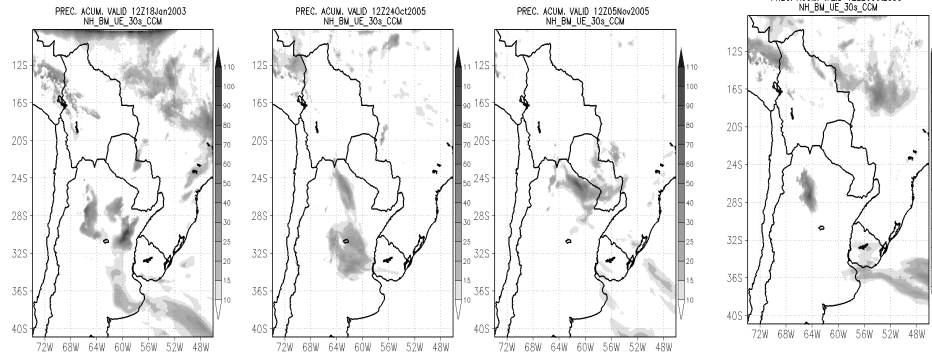
24/oct/2005

05/nov/2005

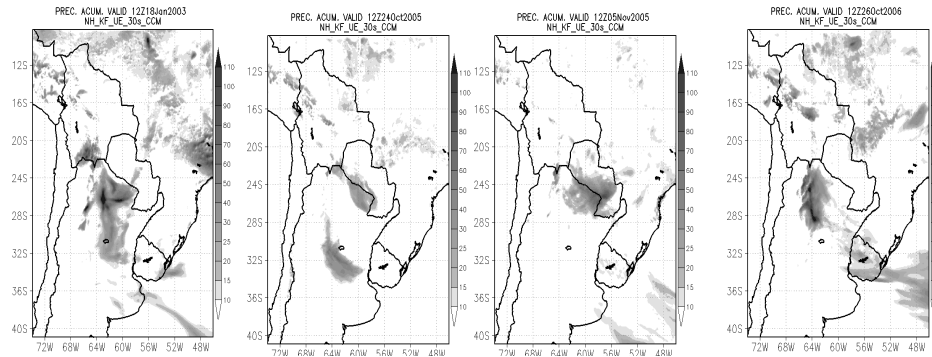
26/oct/2006



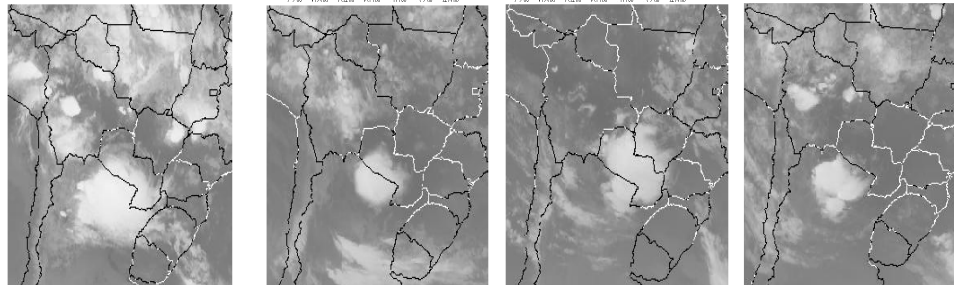
OBSERVADO



BM

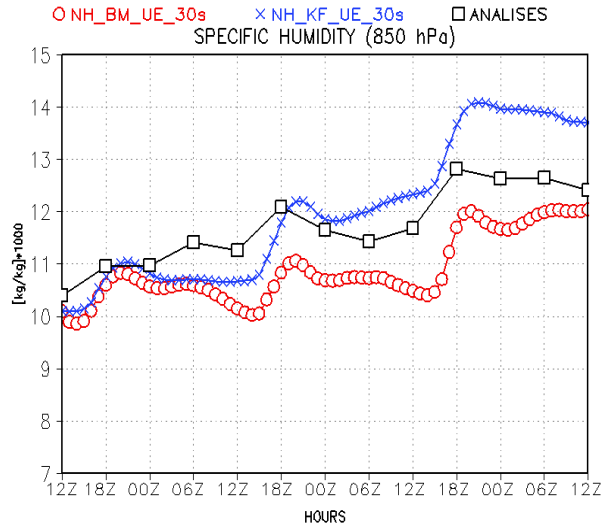
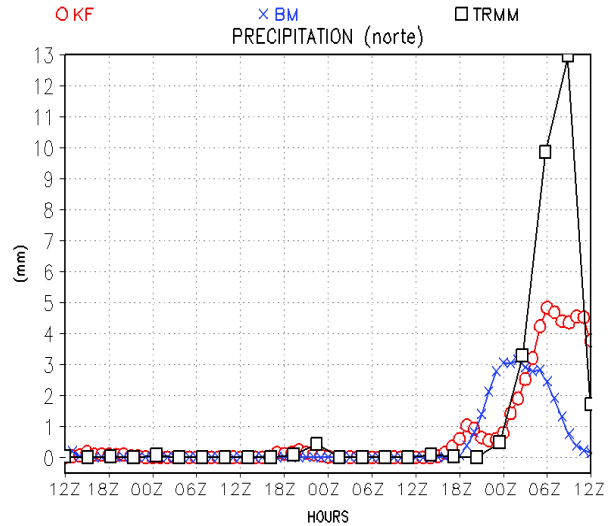


KF

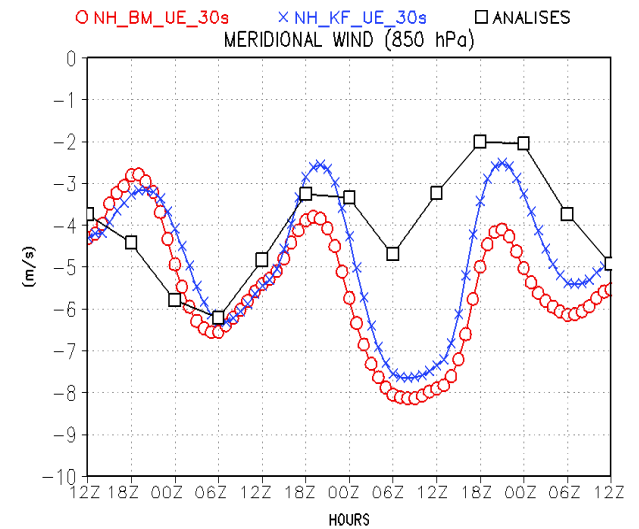
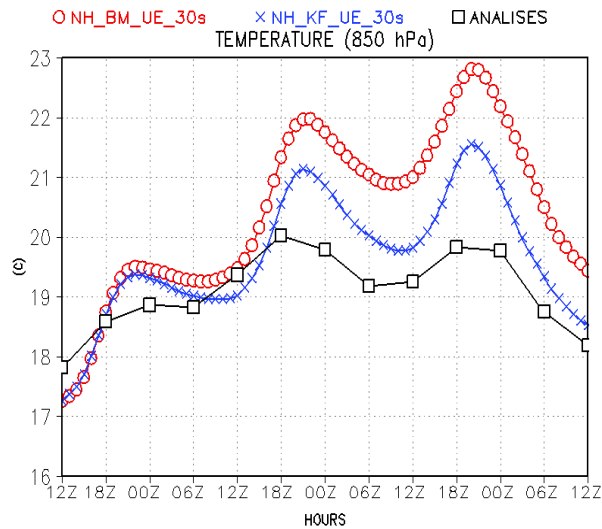
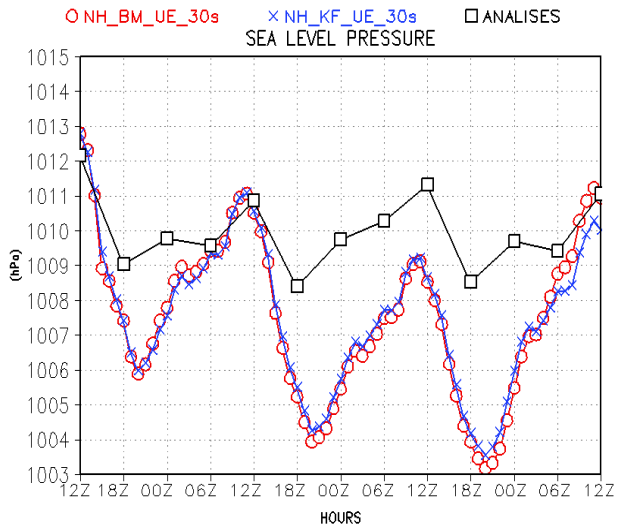
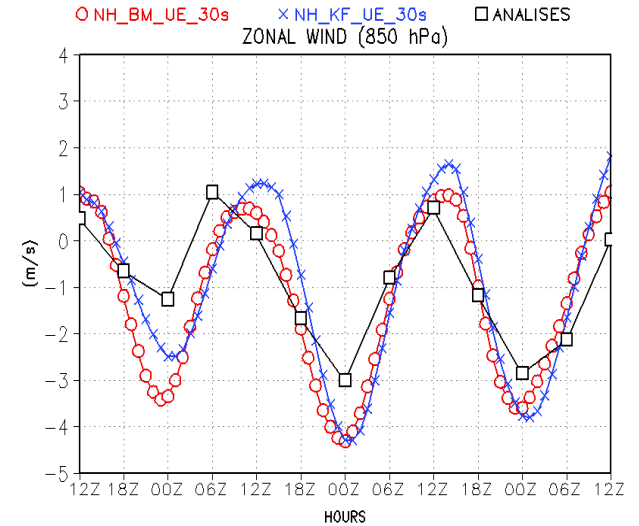


BM x KF

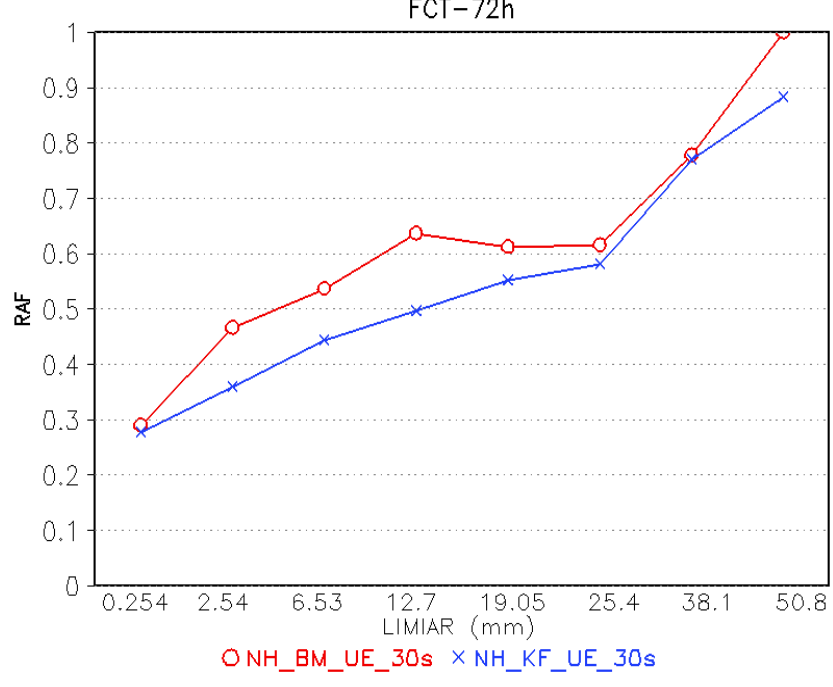
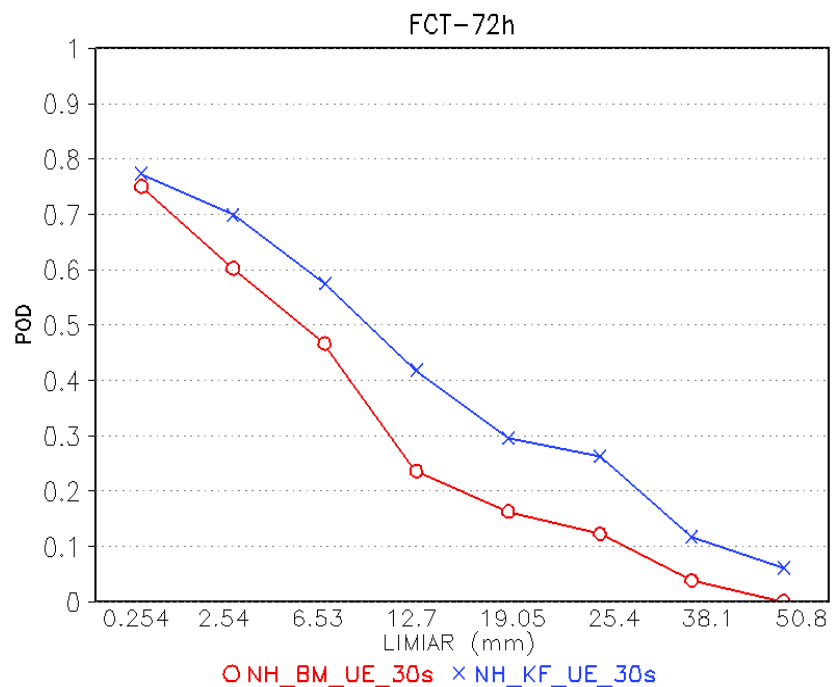
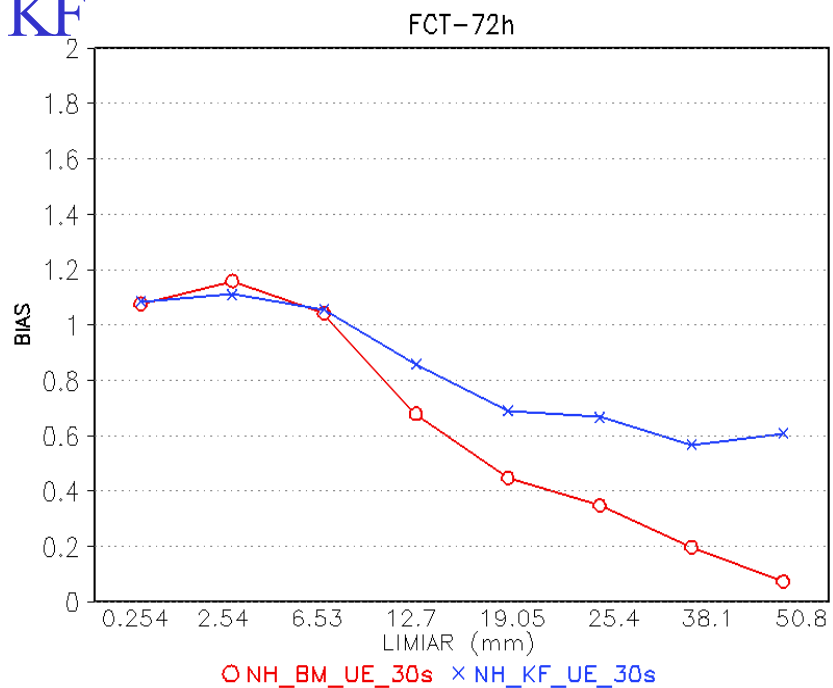
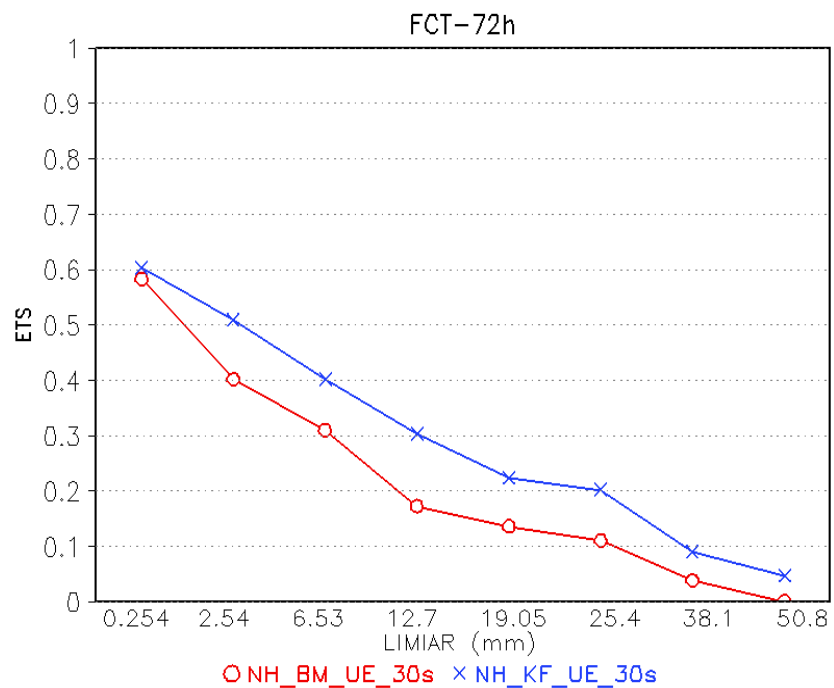
MÉDIA (67W-56W e 28S-20S)



MÉDIA (62W-60W e 20S-18S)



BM x KF

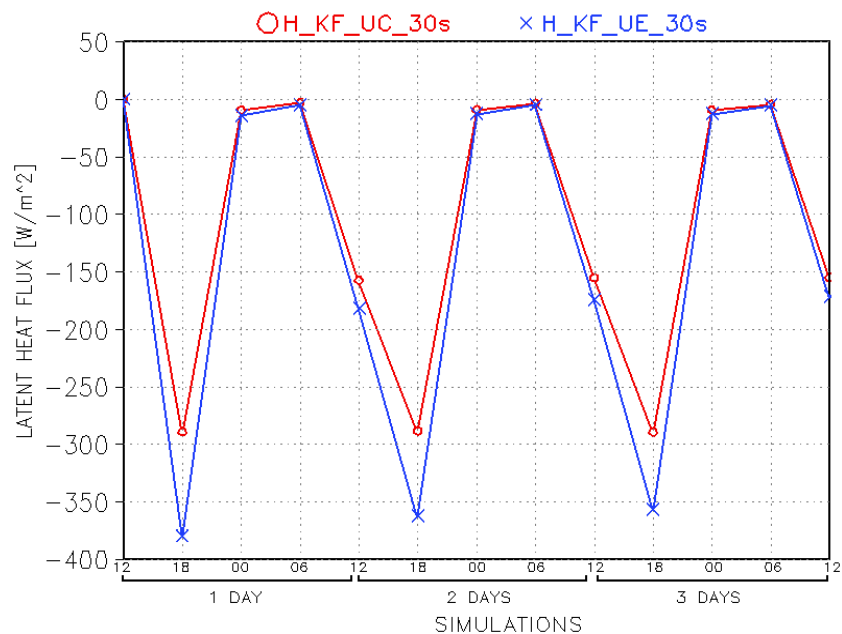
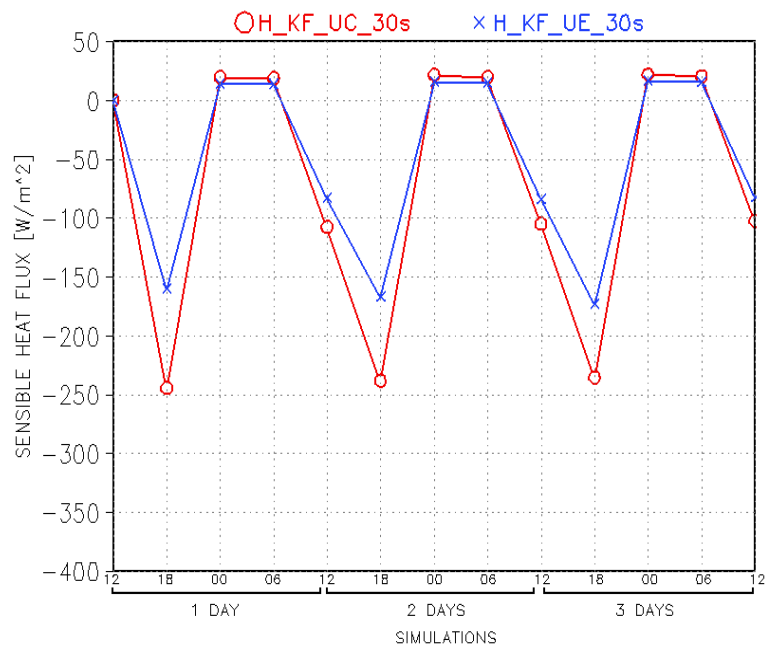
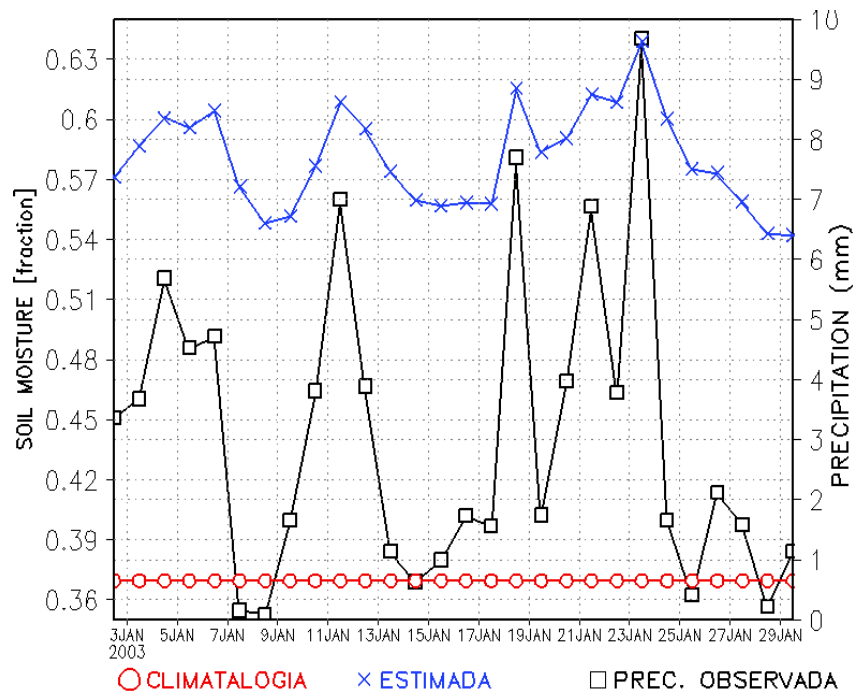


UMIDADE DO SOLO

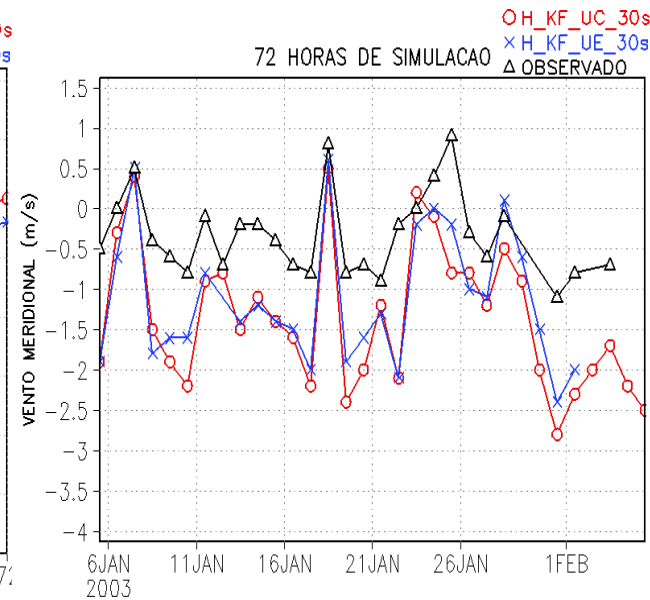
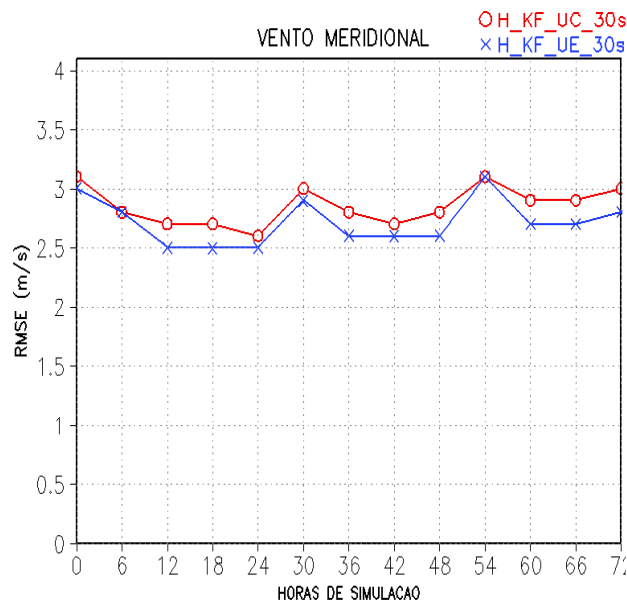
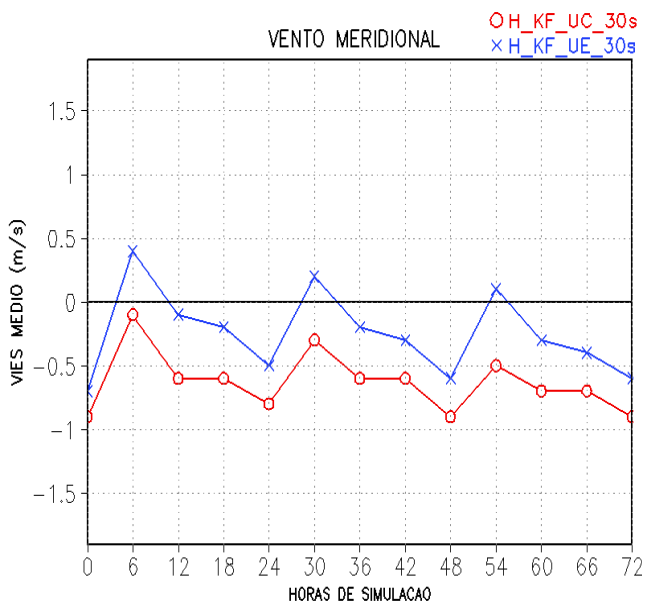
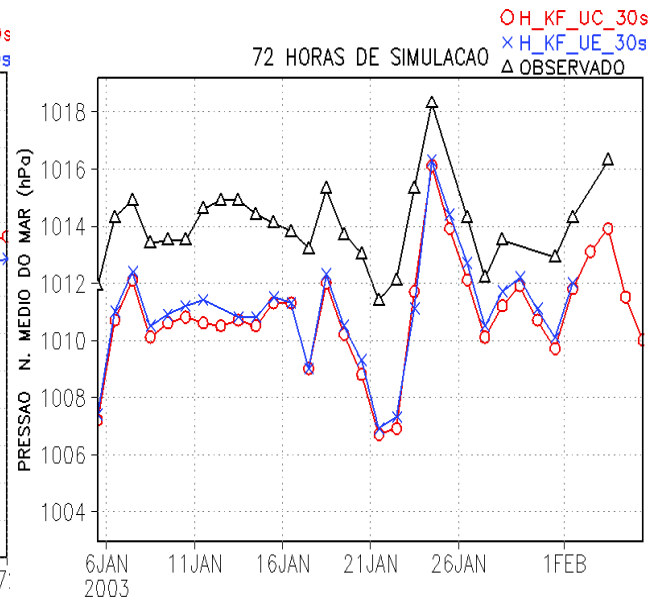
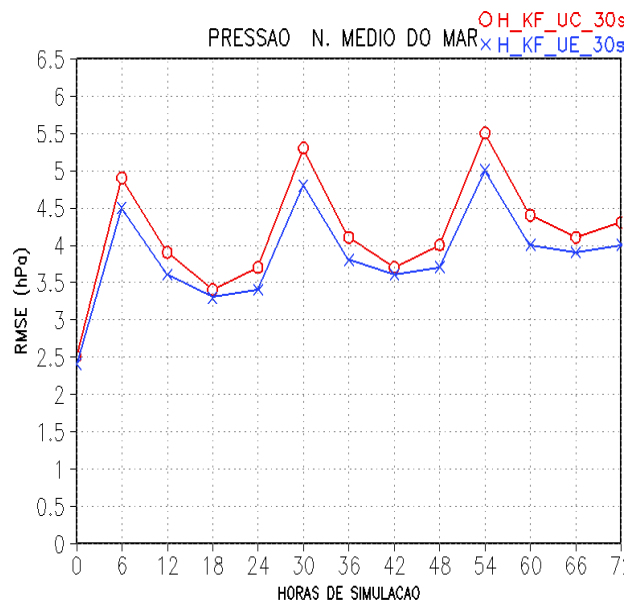
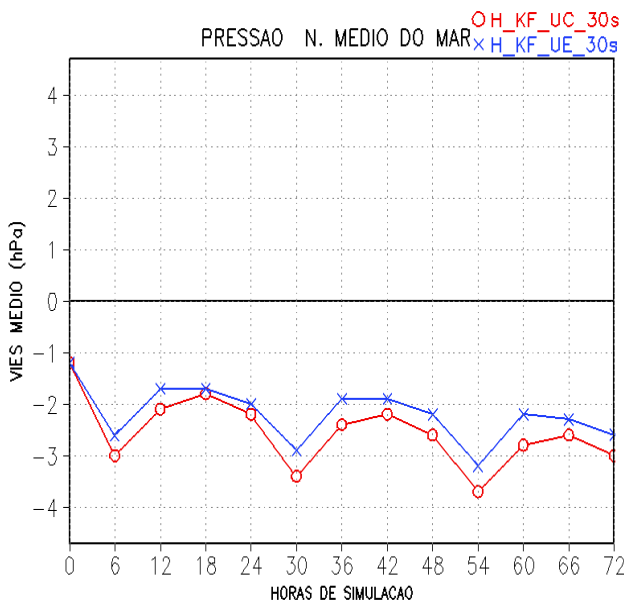
Media área

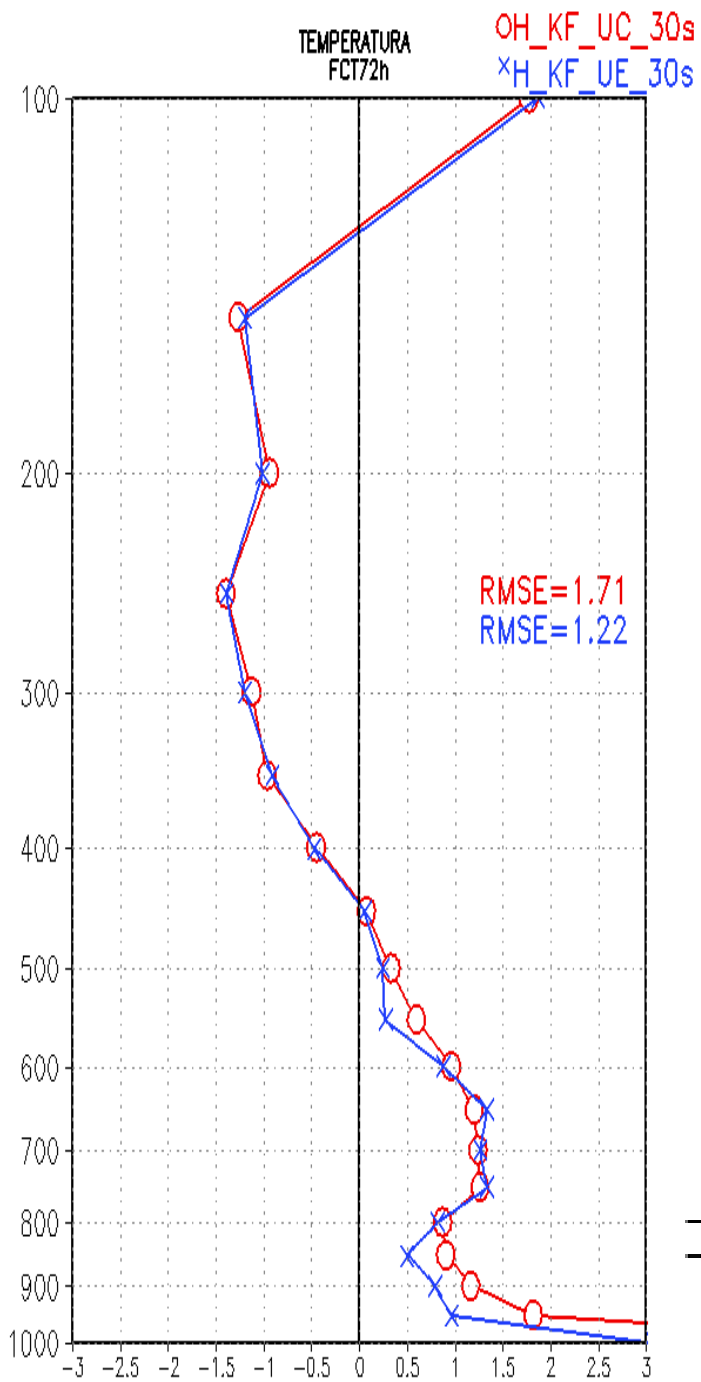
35S-20S 67.5W-55W

UC x UE



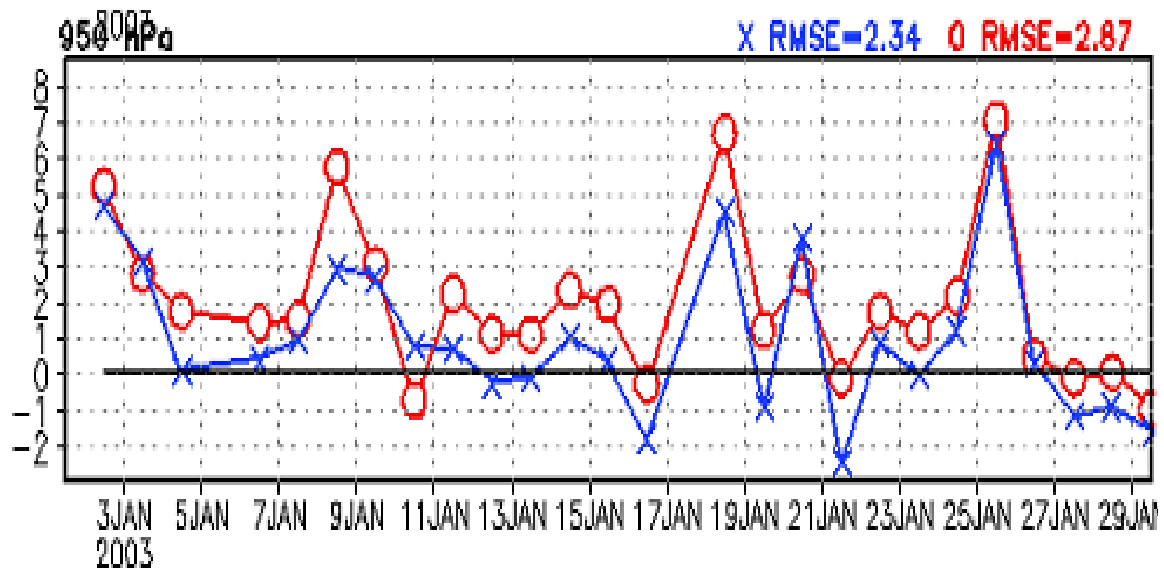
UC x UE



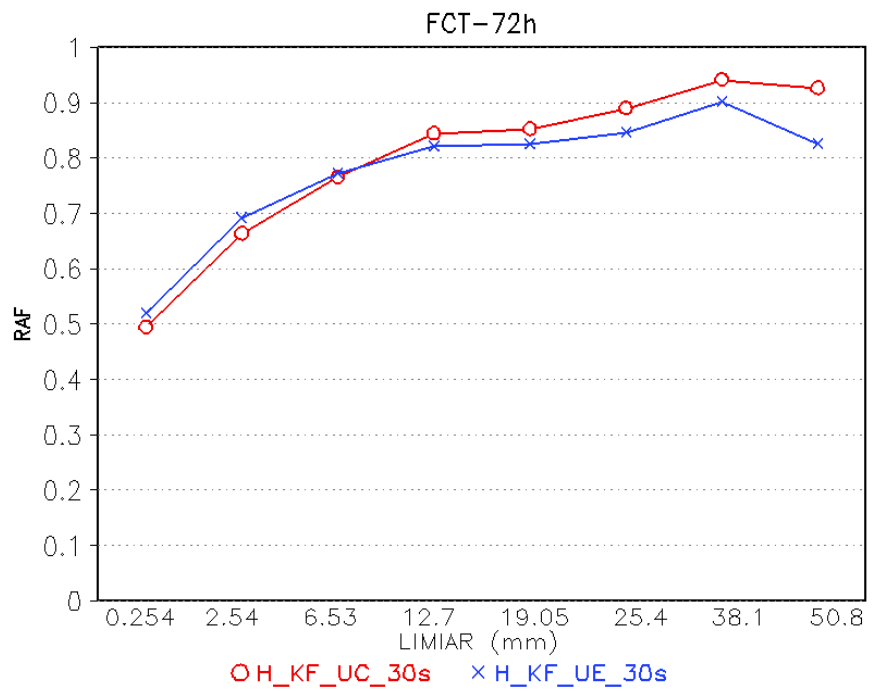
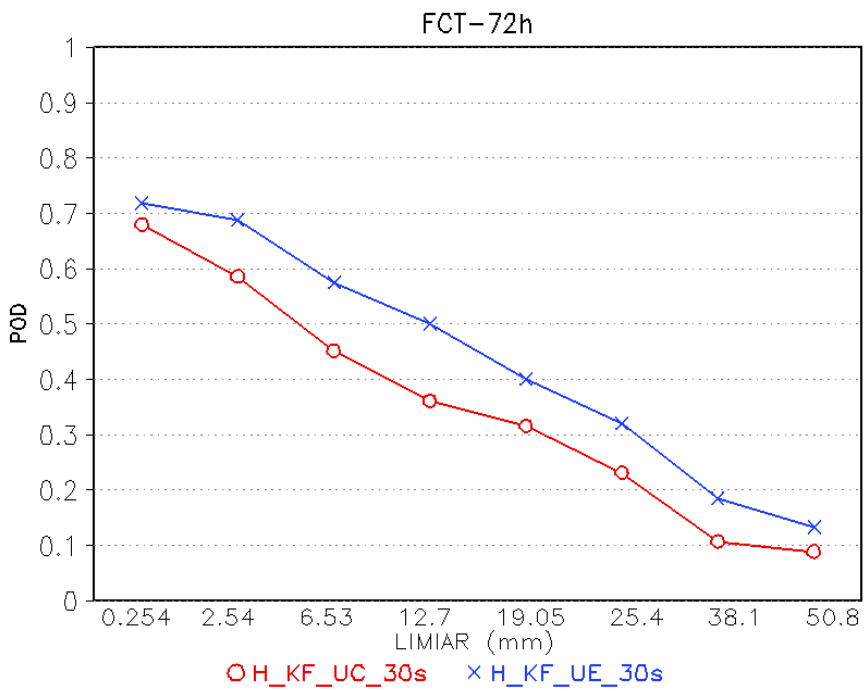
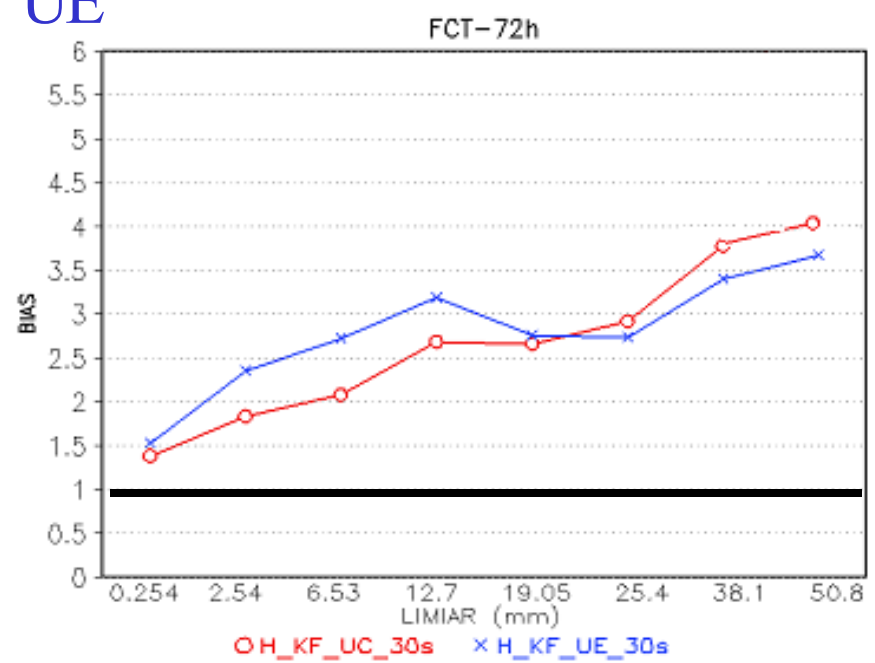
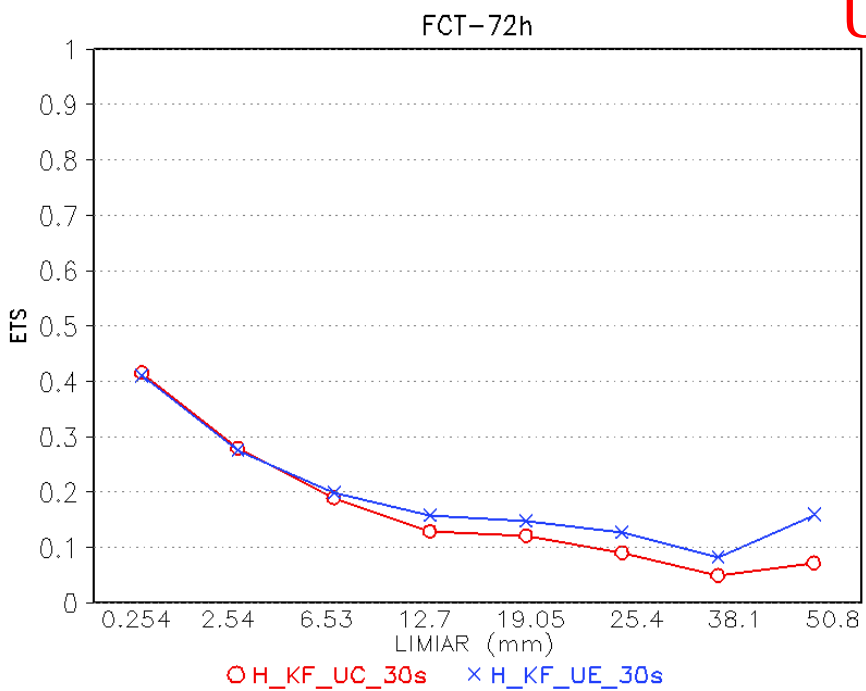


UC x UE

Porto Alegre



UC x UE



CONCLUSÕES

- 1) Cada esquema de convecção varia muito com o ambiente sinótico, e nenhum dos esquemas é melhor em todos os parâmetros analisados.
- 2) O composto de casos de CCMs mostrou que em situações com precipitações de intensidade moderada a forte a versão com Kain-Fritsch conseguiu simular melhor.
- 3) A avaliação de variáveis dinâmicas, termodinâmicas e precipitação para este experimento com umidade do solo mostrou melhorias significativas nas simulações do modelo quando integrado com um campo de umidade mais realístico.

OBRIGADO !!