

Introduction

Je vais parler de runs pulsation forcées. Pas d'atmosphère!

Impact

On s'attendait à avoir un refroidissement de la SST avec la résolution.

Pour comprendre pourquoi, on s'intéresse à la réponse de l'upwelling au changement de résolution, notamment via son impact sur la circulation de grande échelle.

On a voulu regarder comment le changement de résolution modifiait « l'alimentation » de la région d'upwelling par la circulation grande échelle.

Je vais montrer

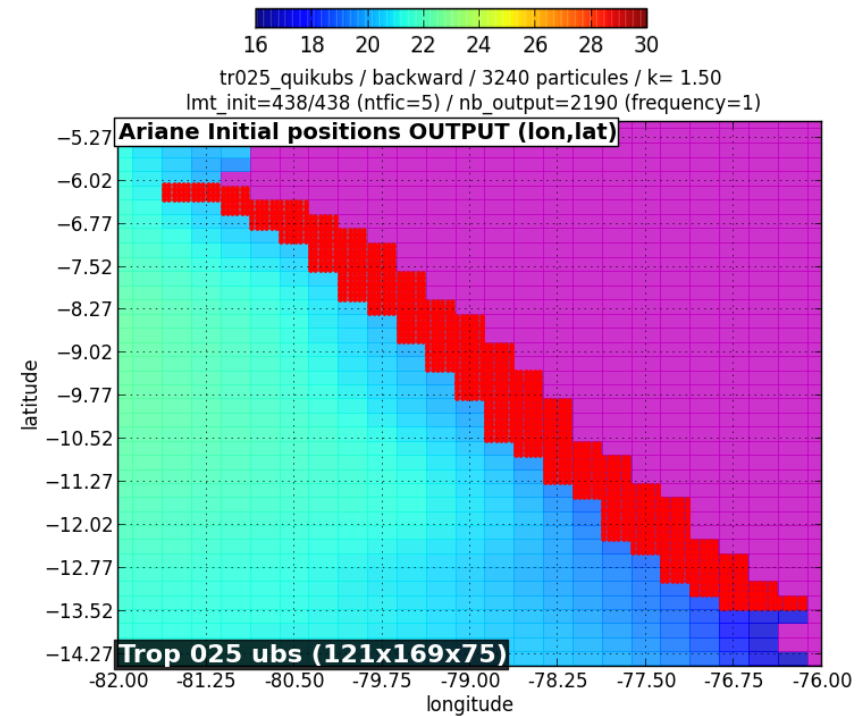
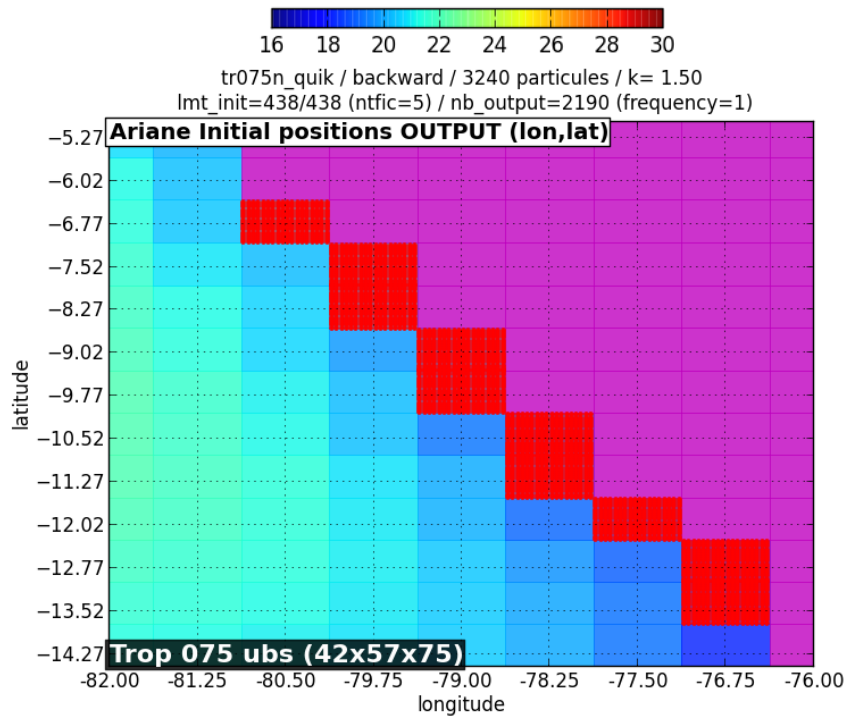
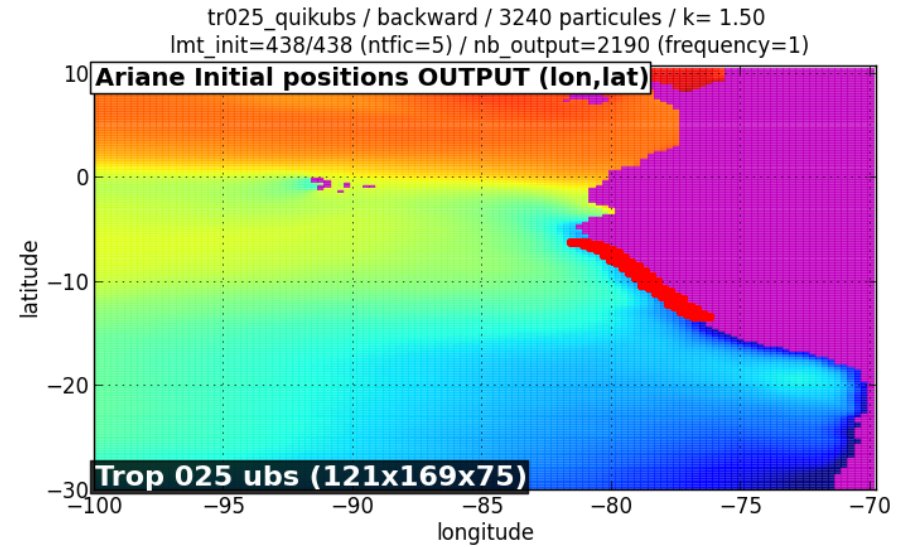
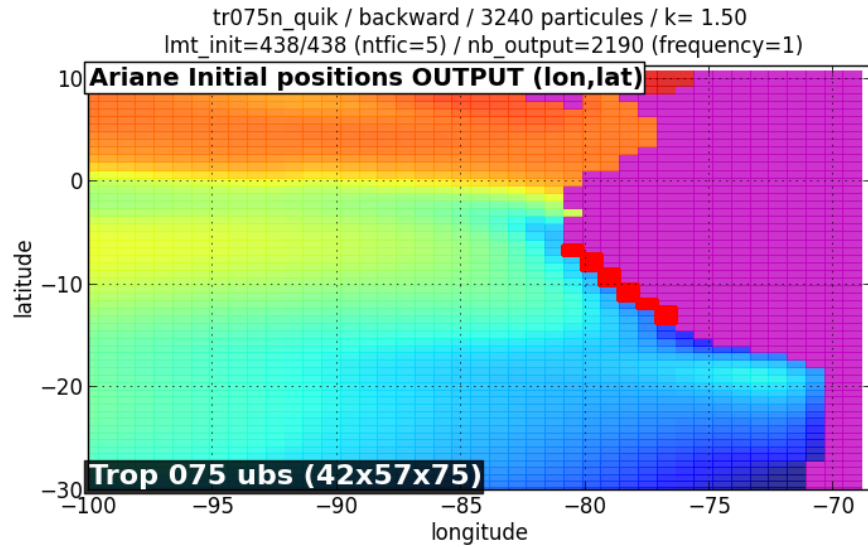
1- Suivi lagrangien de particules (Ariane) dans les runs pulsation forcée aux 3 résolutions (075/ 025/ 12eme)

2- Un exemple sur 2 runs régionaux au 12eme avec des frontières différentes apportant des différences de température .

1 - Ariane comparaison trop075 / trop025

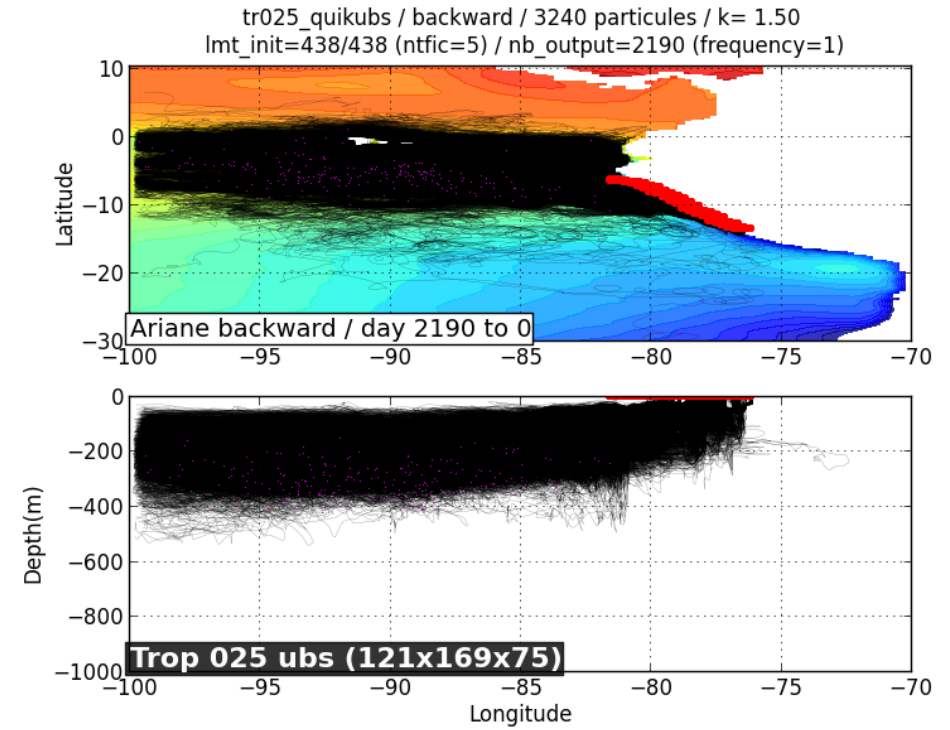
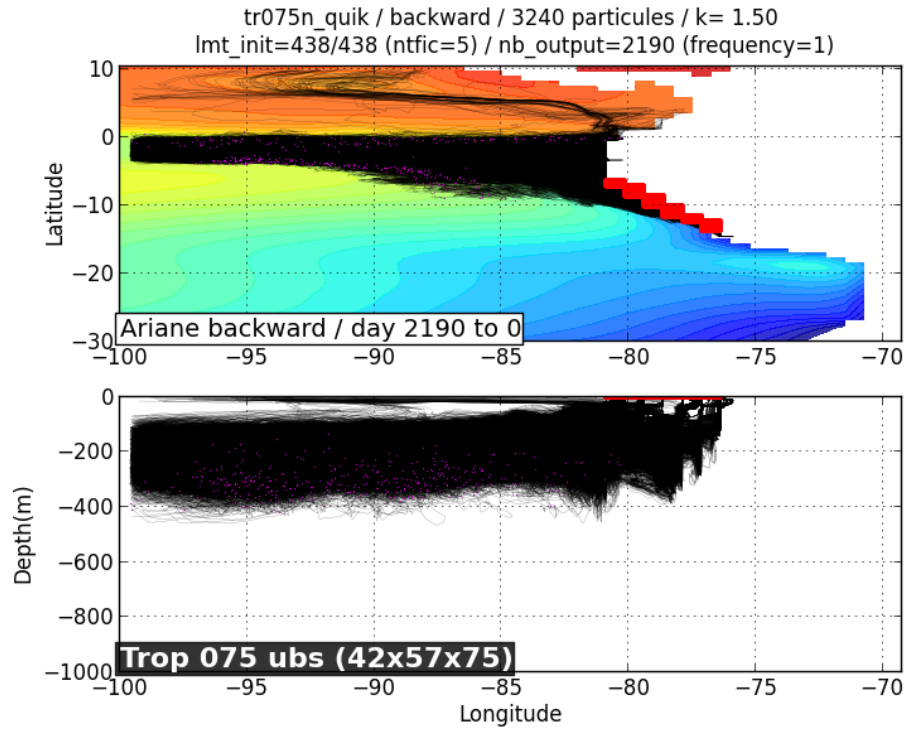
Ariane comparaison trop075 / trop025

Position initiales des 3240 particules le long de la côte



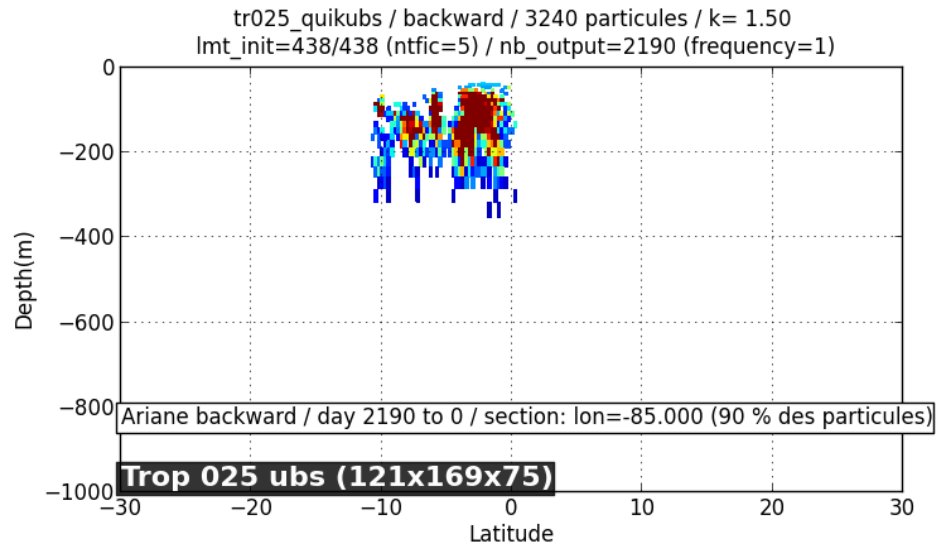
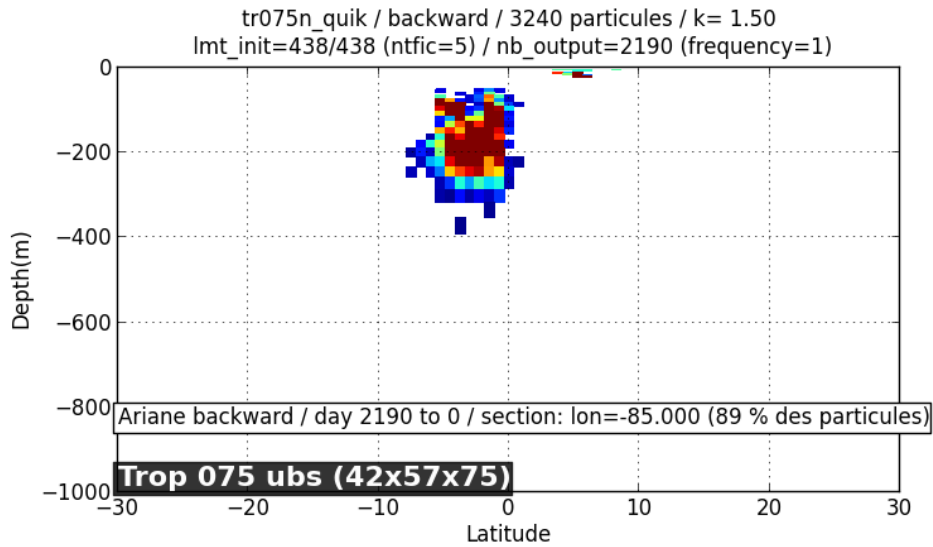
Ariane comparaison trop075 / trop025

BACKWARD des 3240 particules de 2008 => 2003

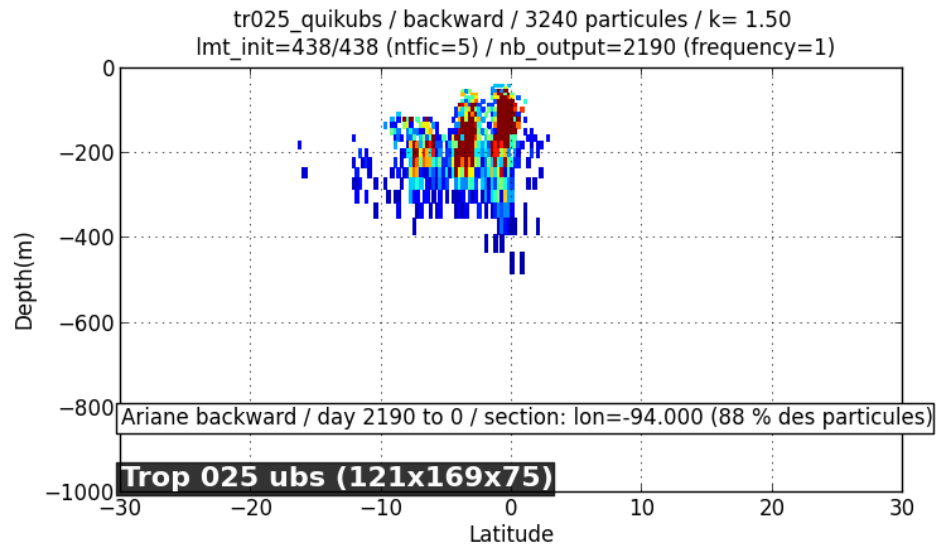
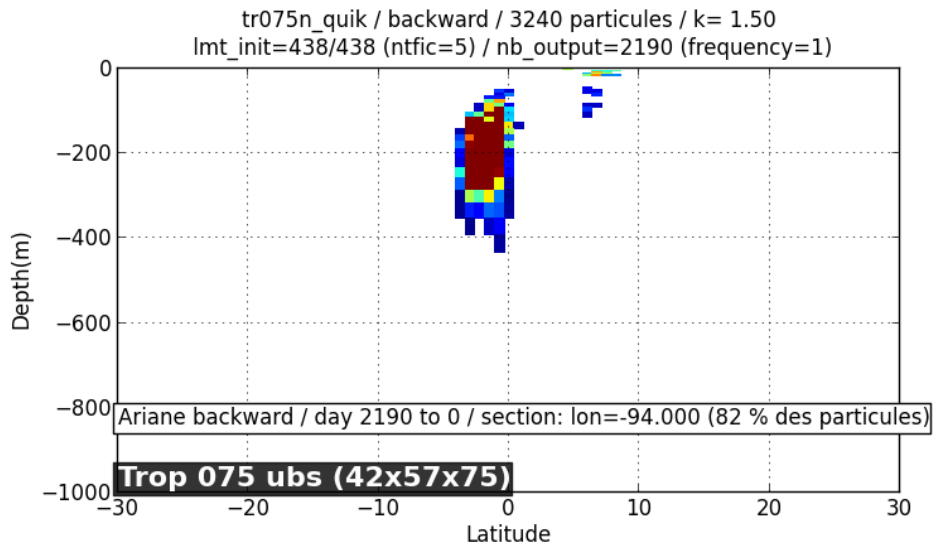


Ariane comparaison trop075 / trop025

Section à l'Est des Galapagos (85W) - 3240 particules

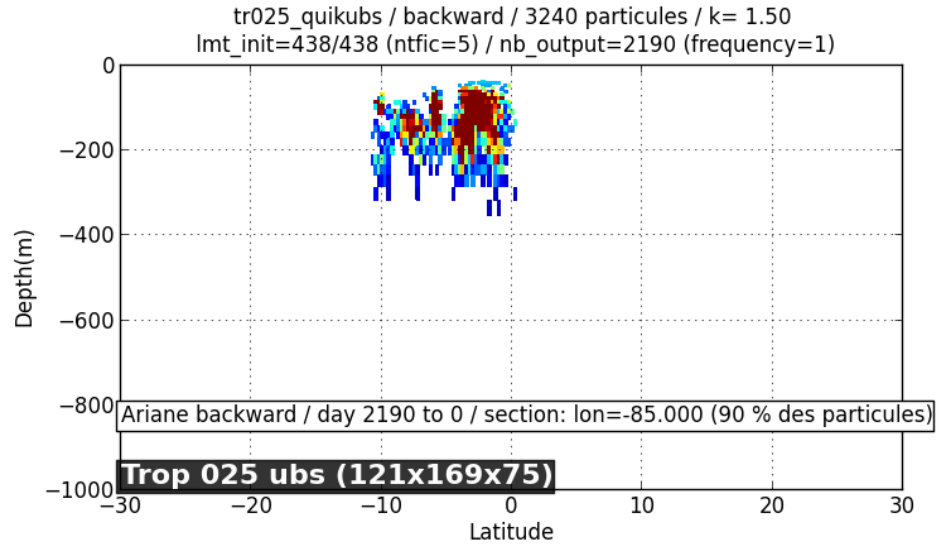
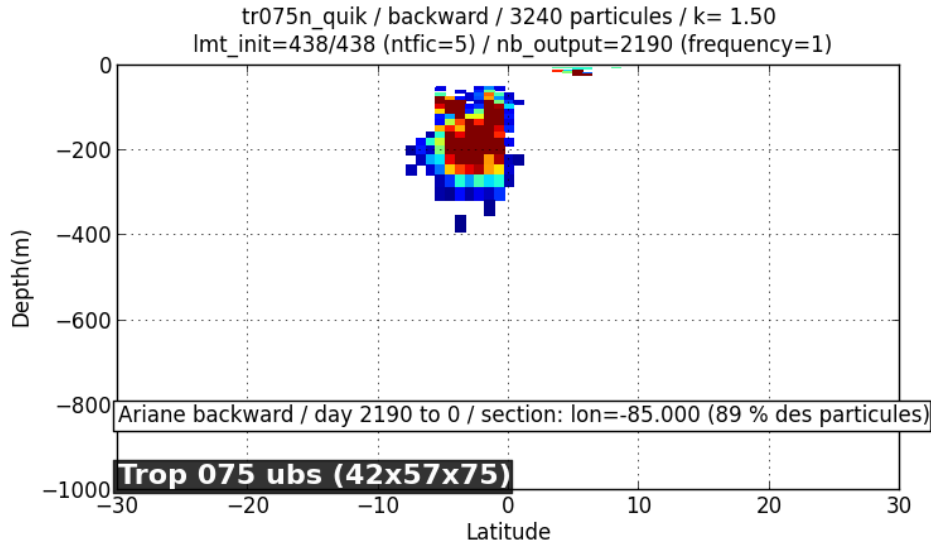


Section à l'Ouest des Galapagos (94W) - 3240 particules

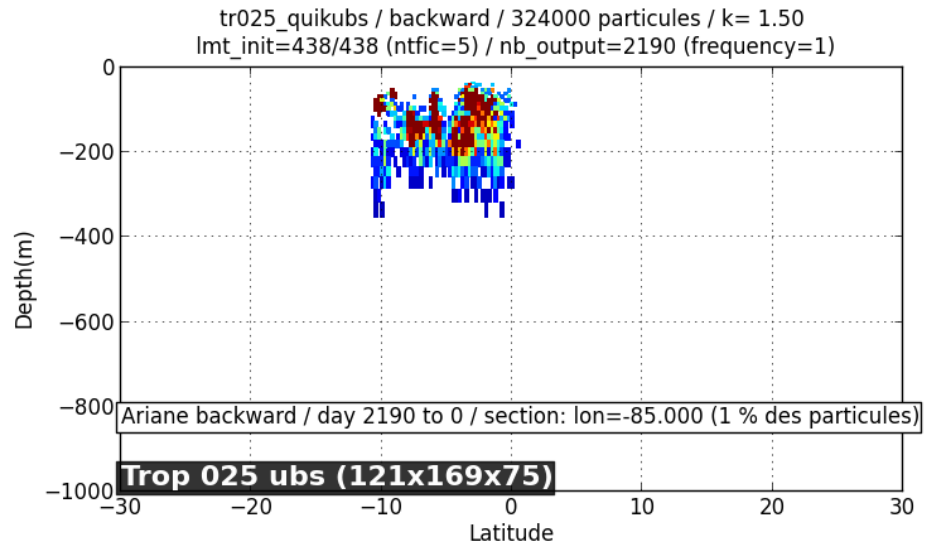
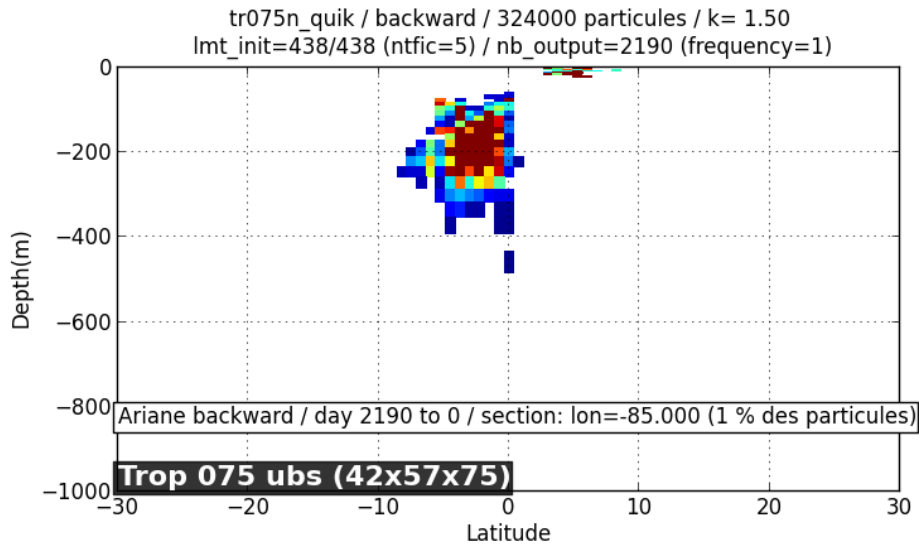


Ariane comparaison trop075 / trop025

Section à l'Est des Galapagos (85W) 3240 particules

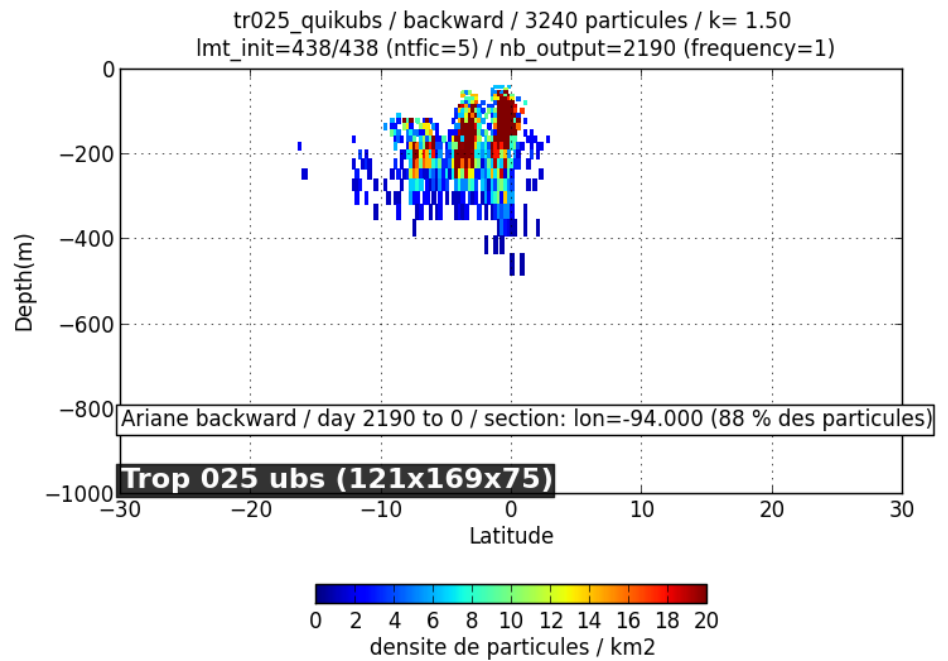
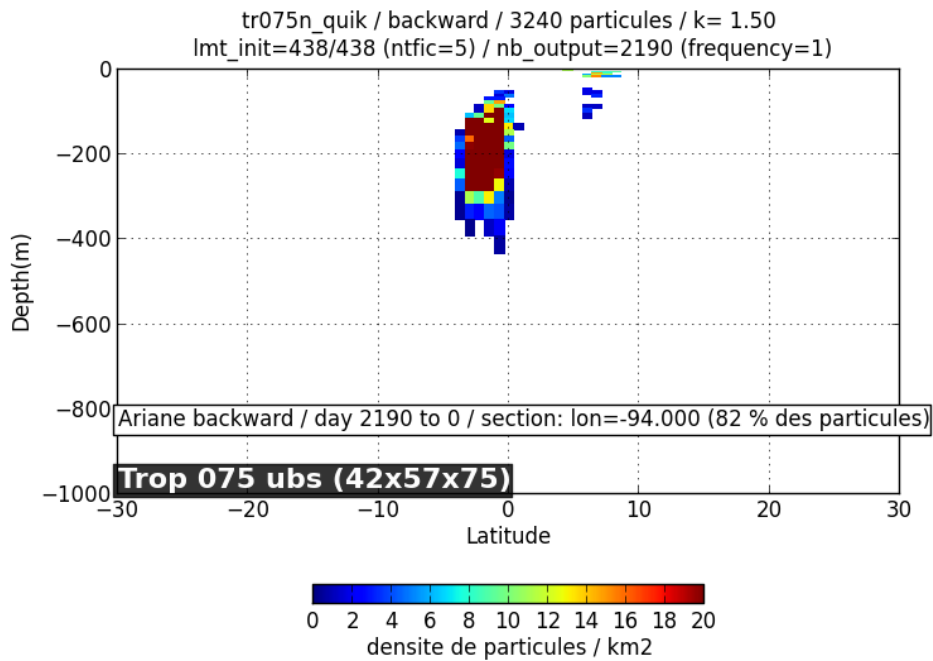


324.000 particules

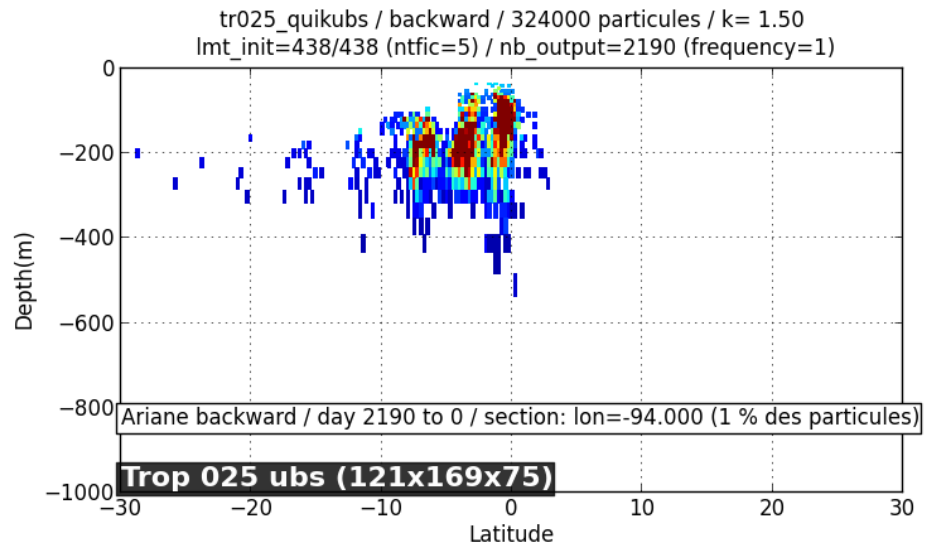
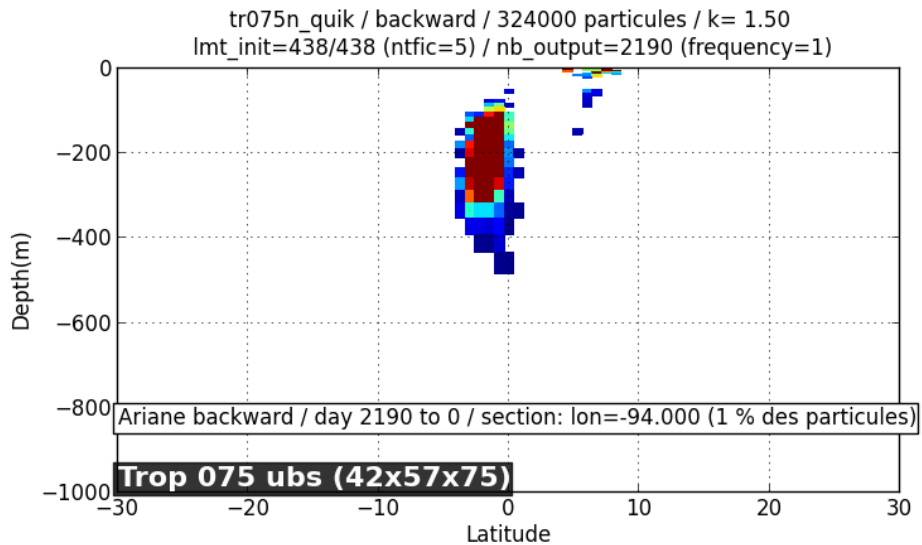


Ariane comparaison trop075 / trop025

Section à l'Ouest des Galapagos (94W) 3240 particules



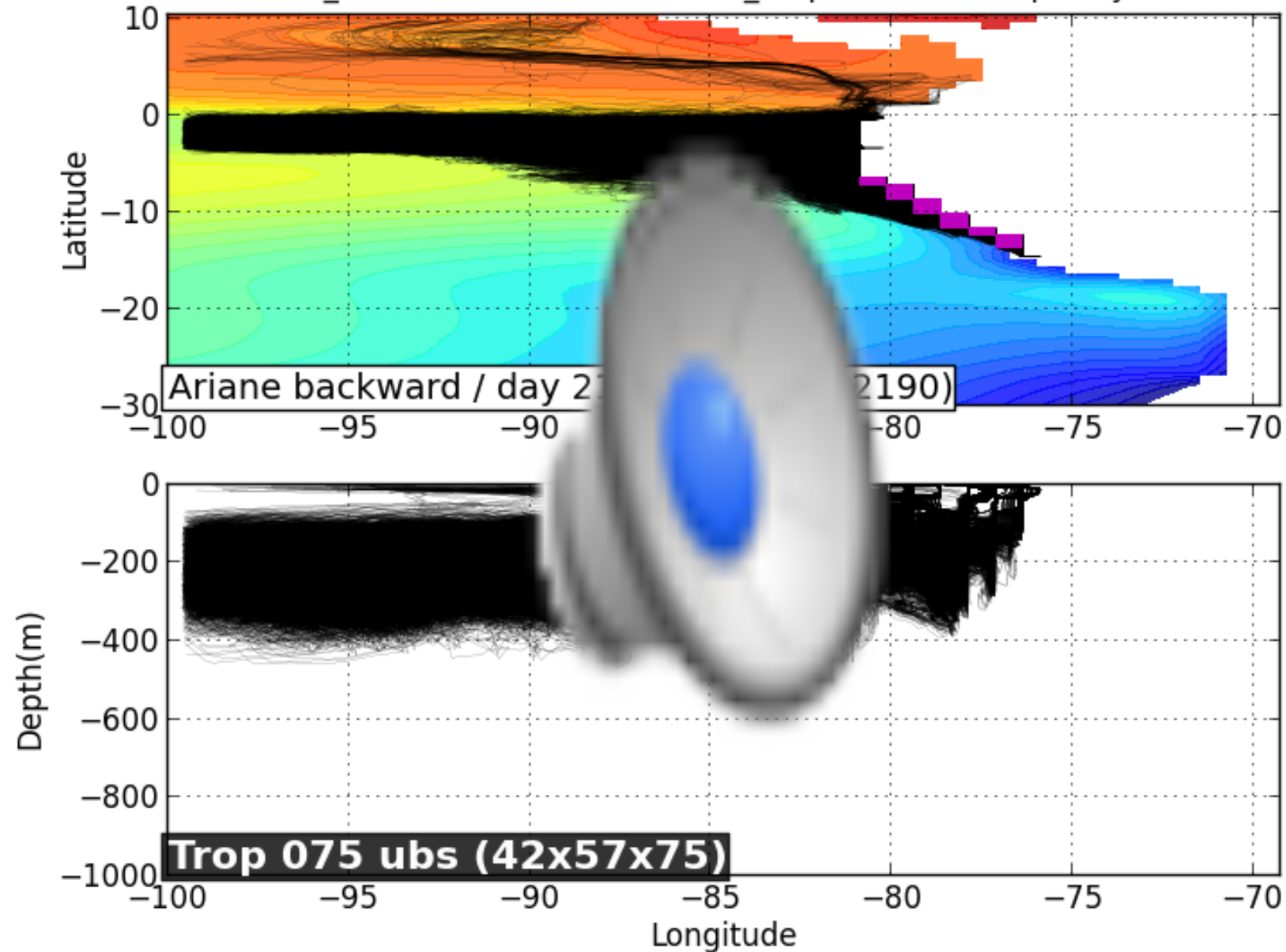
324.000 particules



Ariane comparaison trop075 / trop025

(Animation trop075 2008- > 2003)

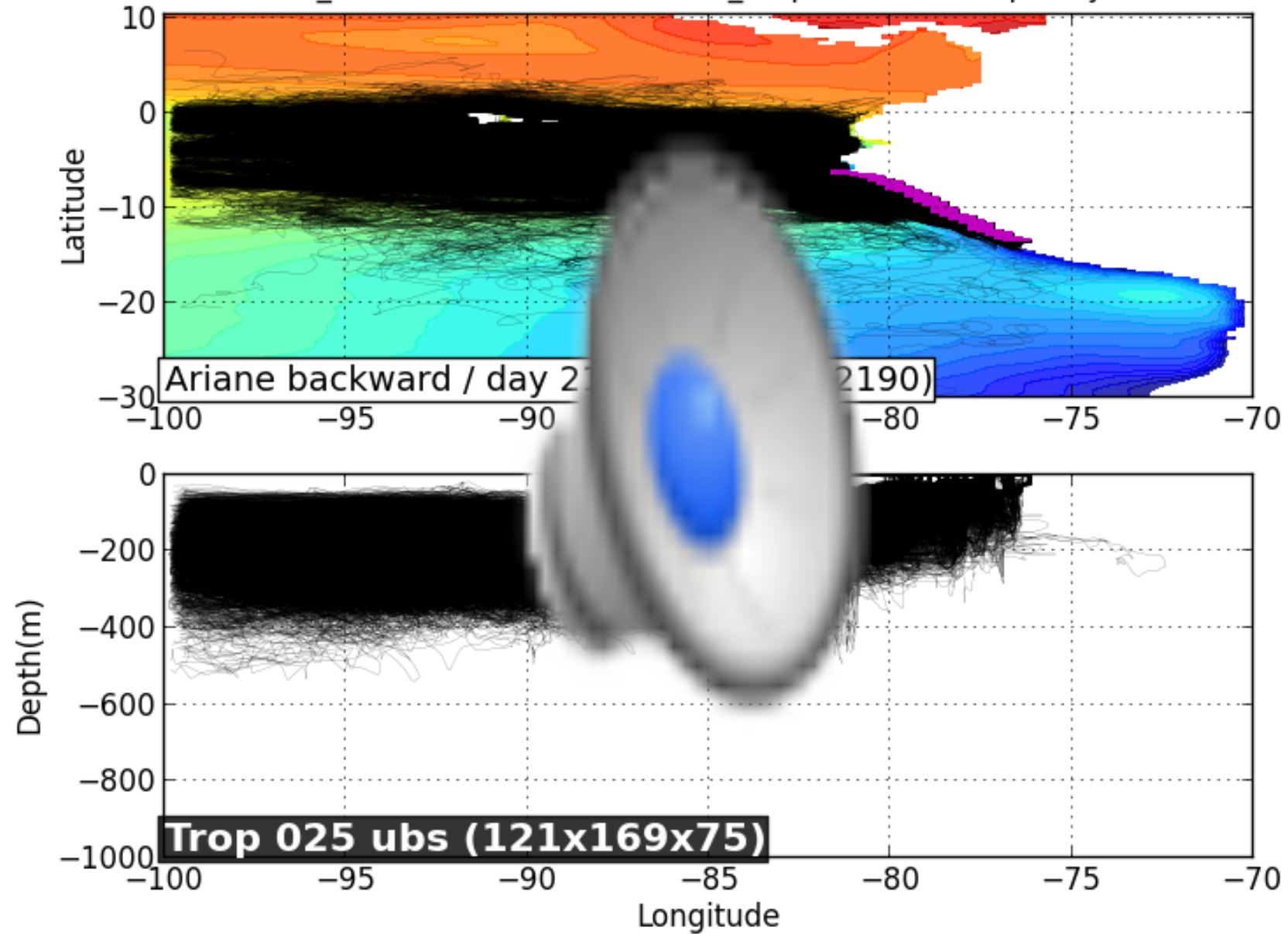
tr075n_quik / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)



Ariane comparaison trop075 / trop025

(Animation trop025 2008- > 2003)

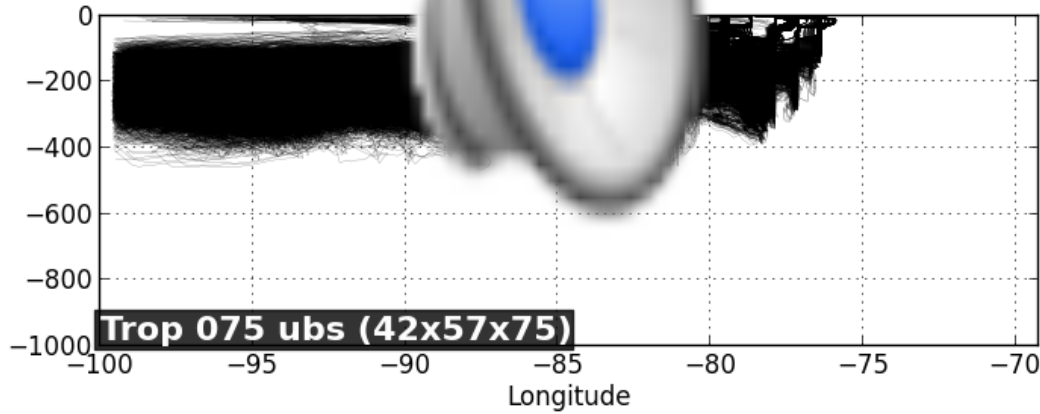
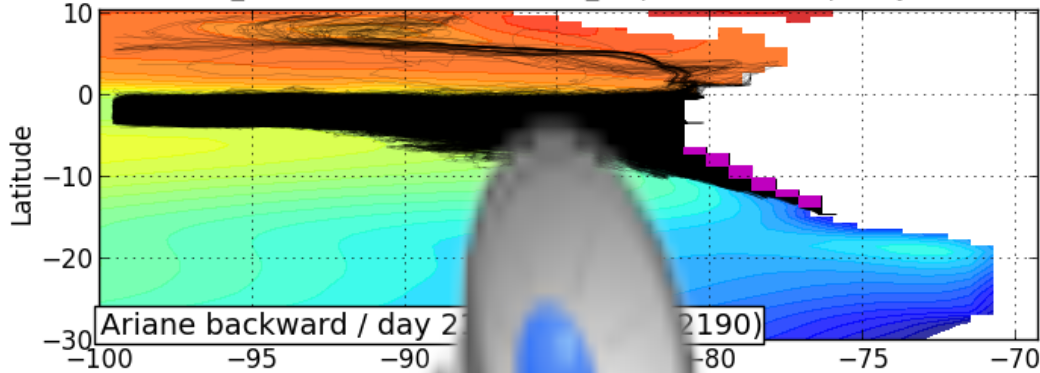
tr025_quikubs / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfc=5) / nb_output=2190 (frequency=1)



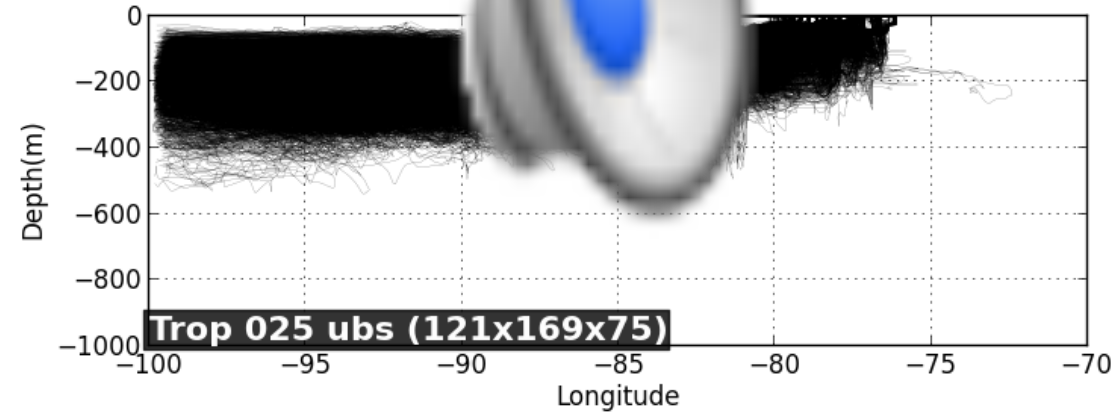
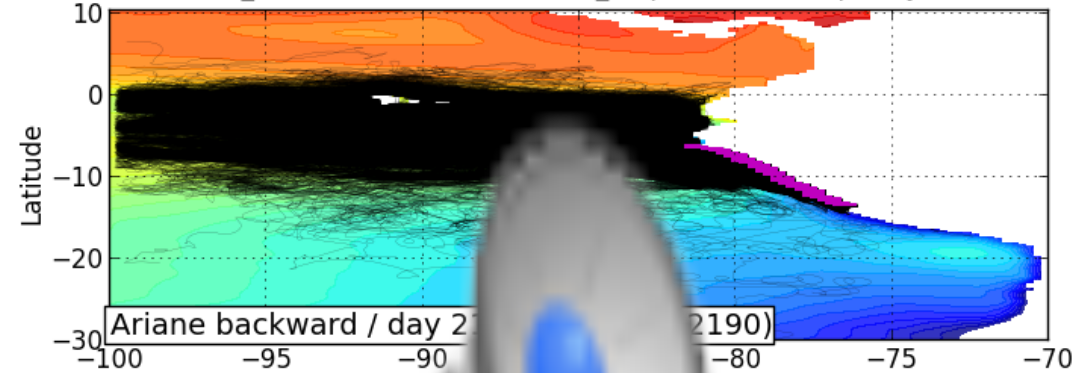
Ariane comparaison trop075 / trop025

(Animation trop075/trop025 2008- > 2003)

tr075n_quik / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)

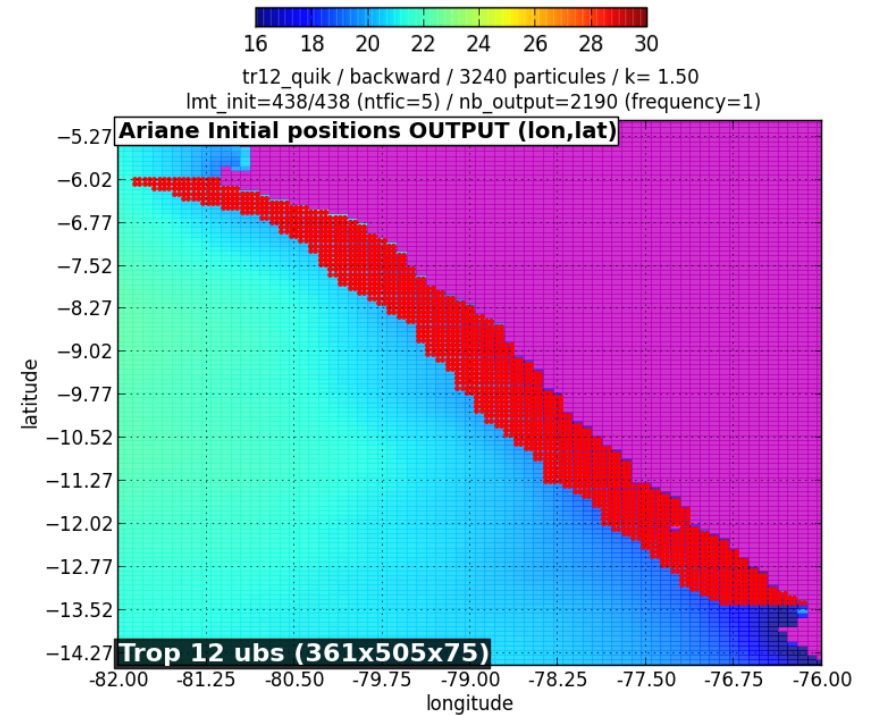
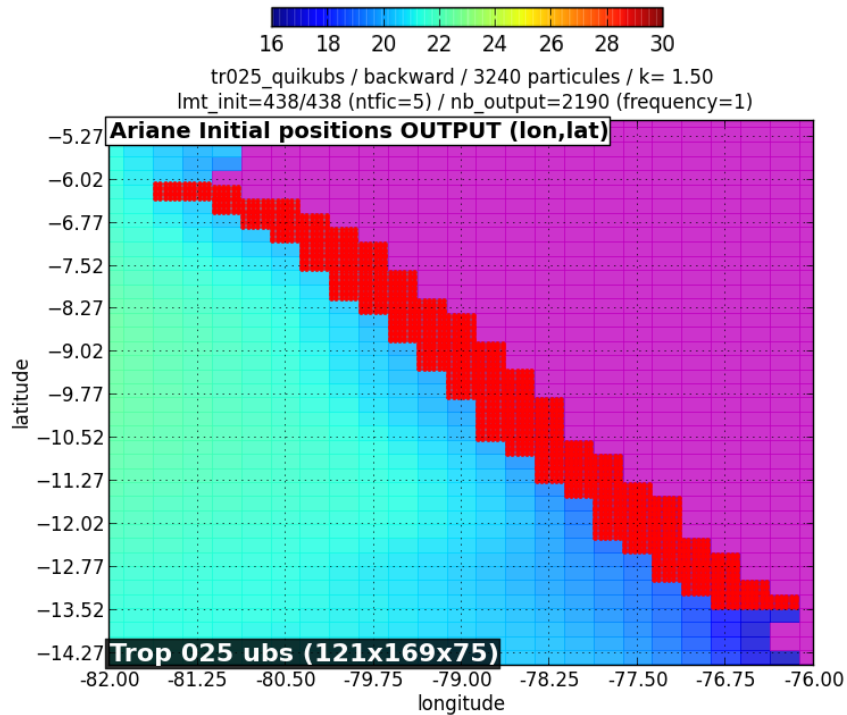
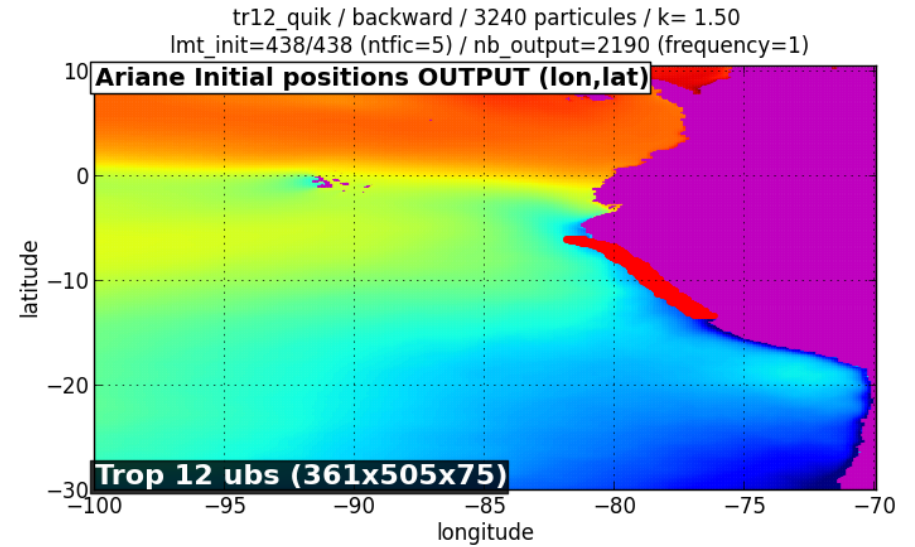
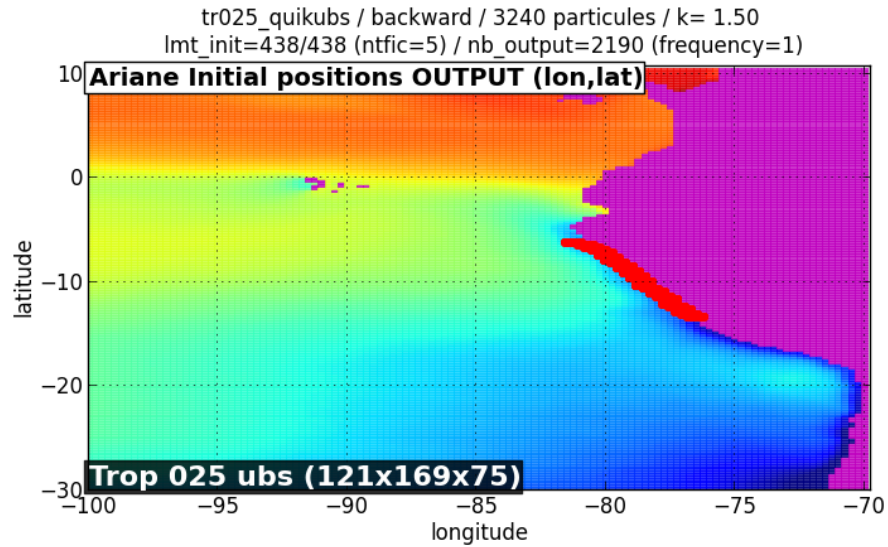


tr025_quikubs / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)



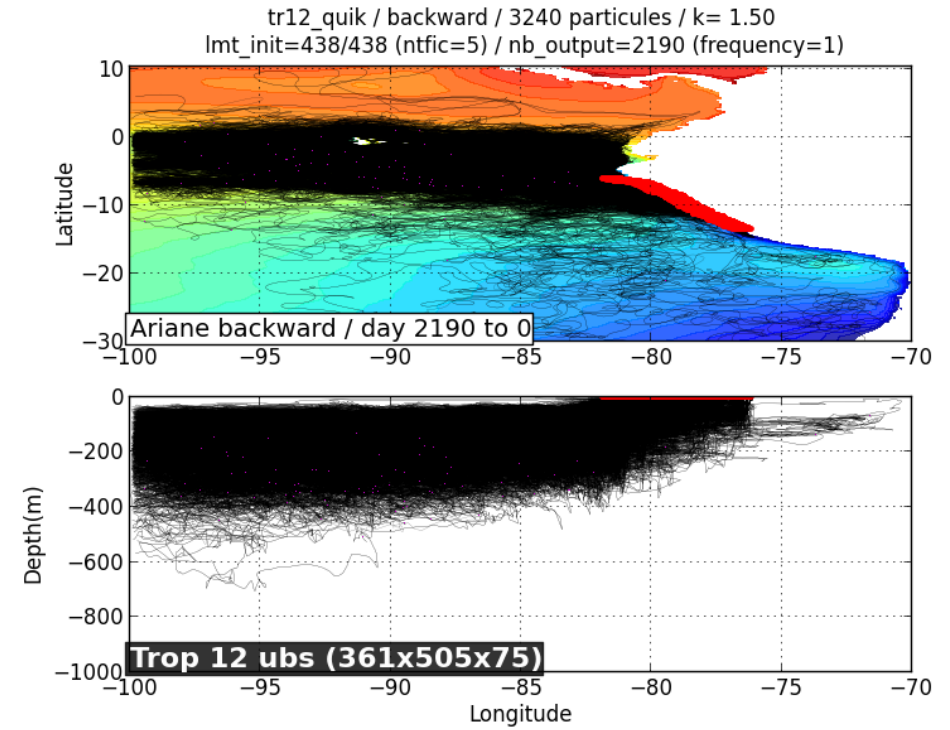
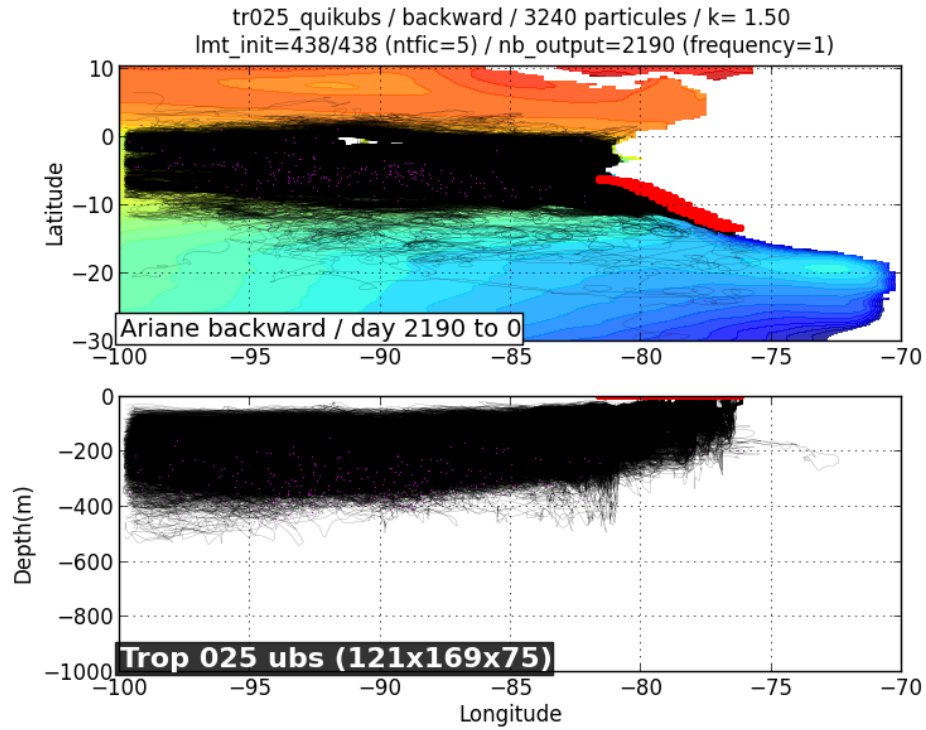
Ariane comparaison trop025 / trop12

Position initiales des 3240 particules le long de la côte



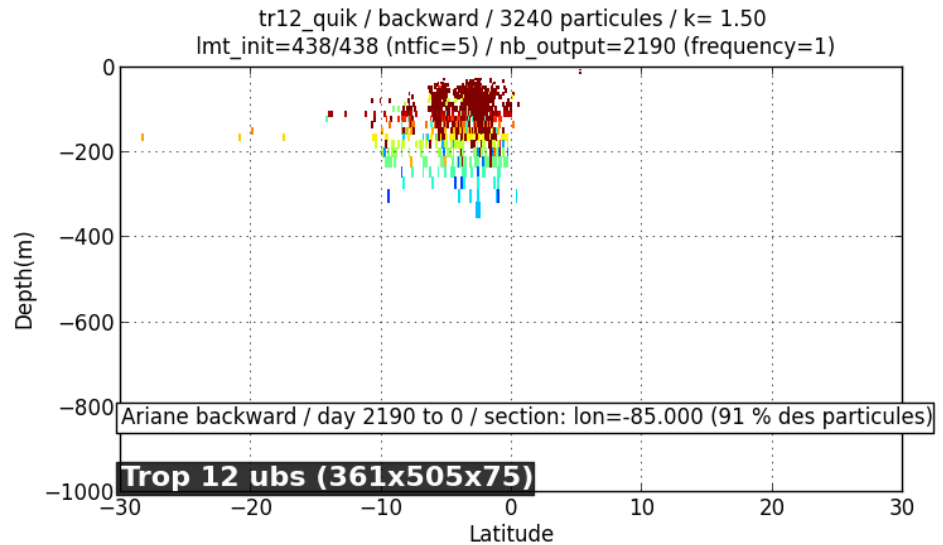
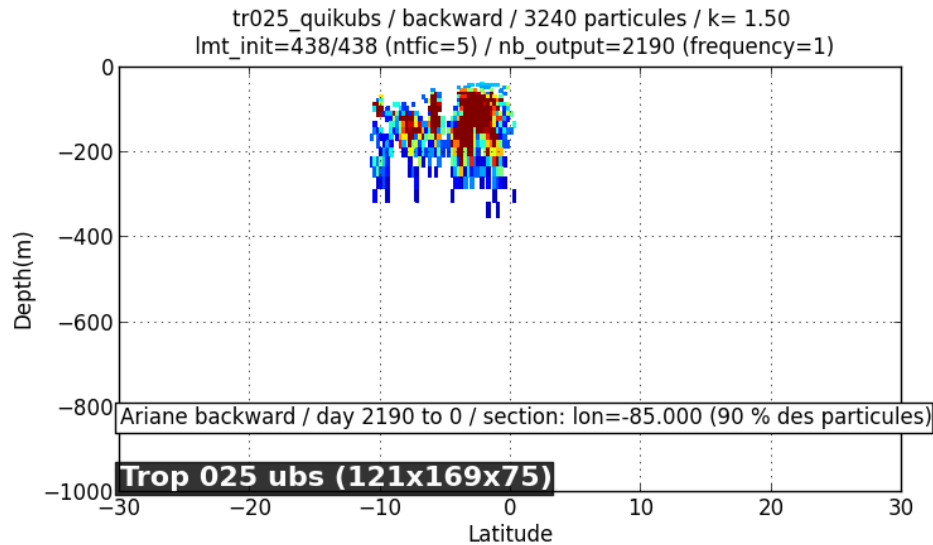
Ariane comparaison trop025 / trop12

BACKWARD des 3240 particules de 2008 => 2003

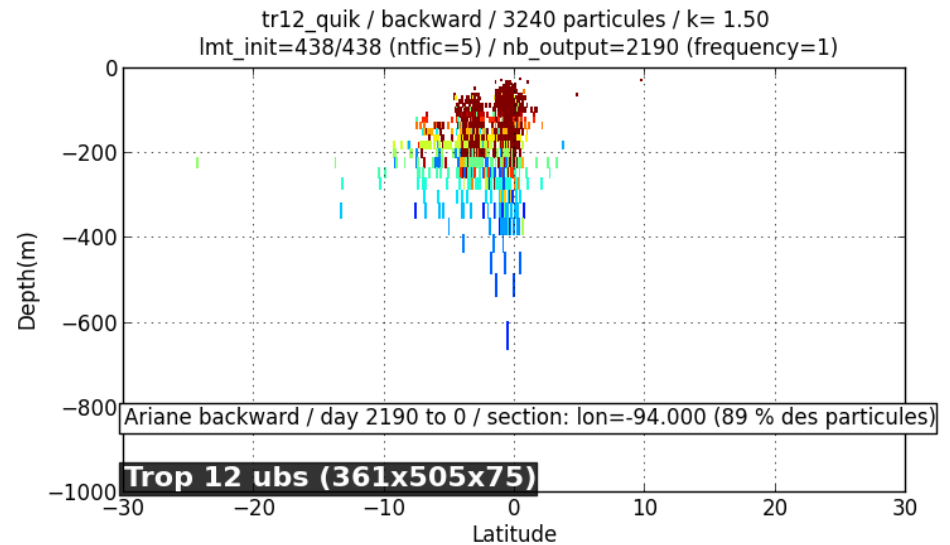
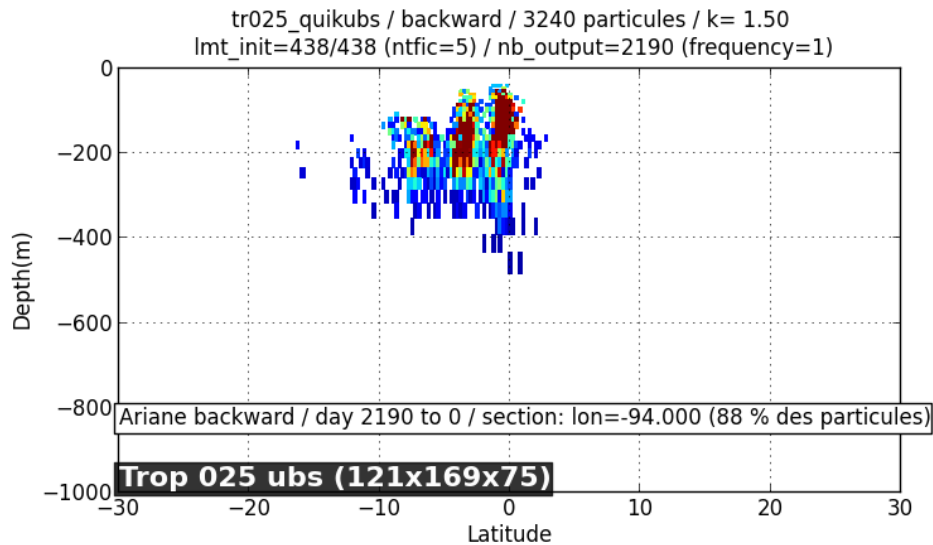


Ariane comparaison trop025 / trop12

Section à l'Est des Galapagos (85W) - 3240 particules



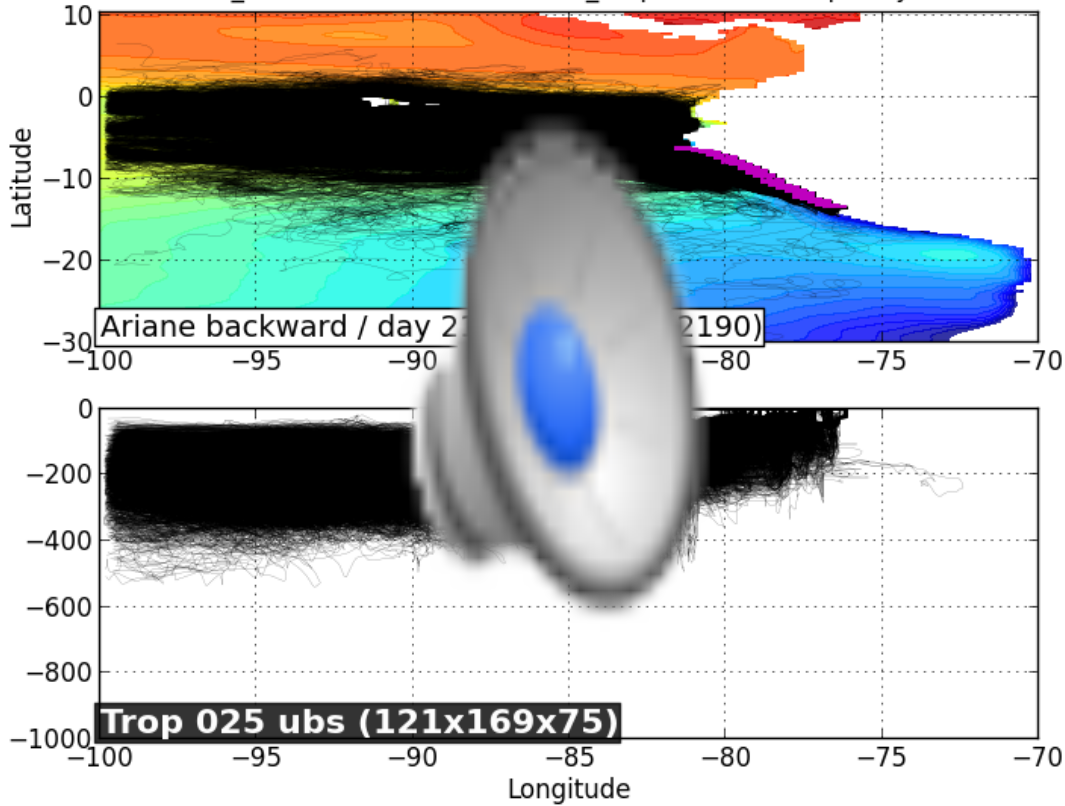
Section à l'Ouest des Galapagos (94W) - 3240 particules



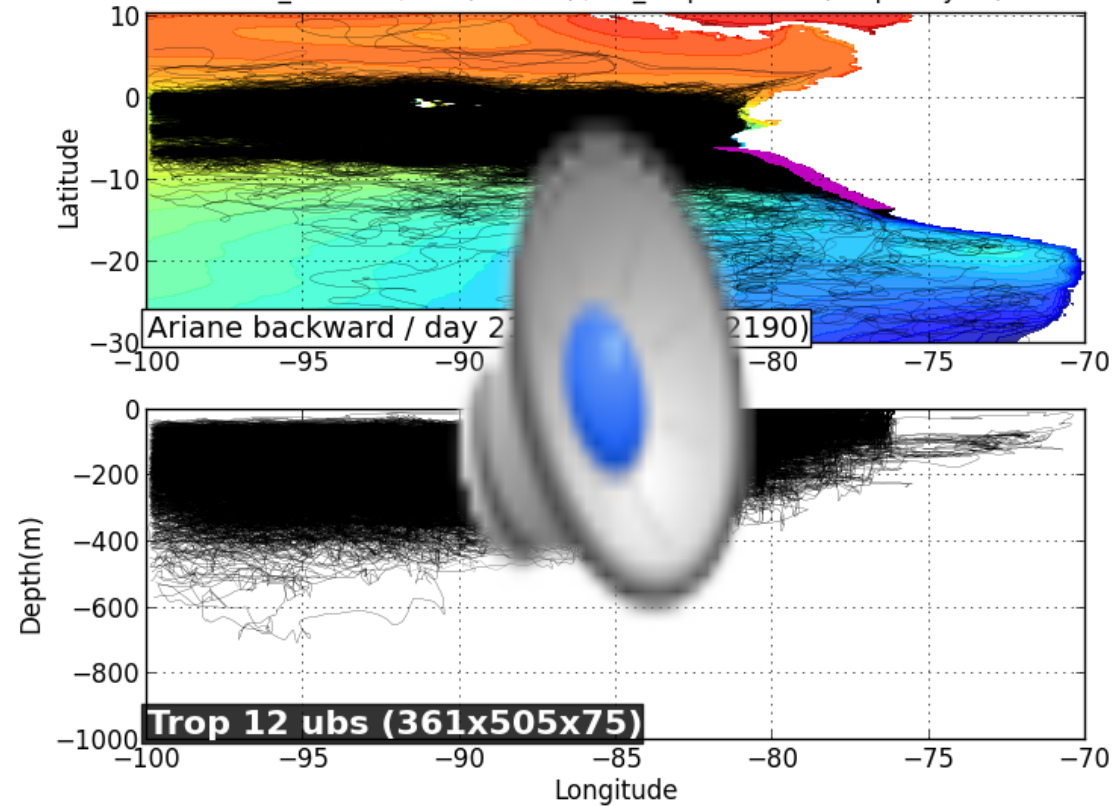
Ariane comparaison trop025 / trop12

(Animation trop025/trop12 2008- > 2003)

tr025_quikubs / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)



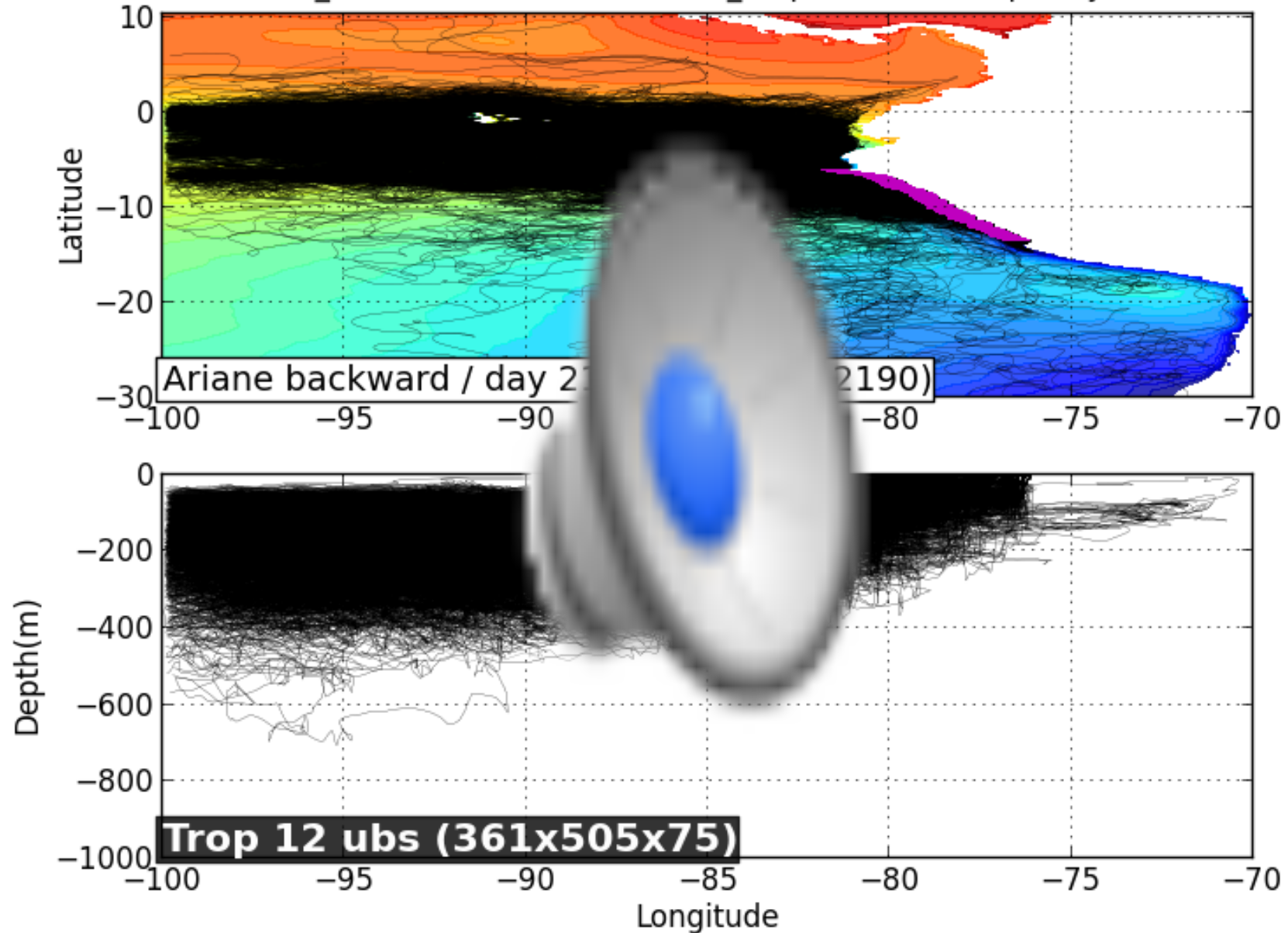
tr12_quik / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)



Ariane comparaison trop025 / trop12

(Animation trop12 2008- > 2003)

tr12_quik / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)

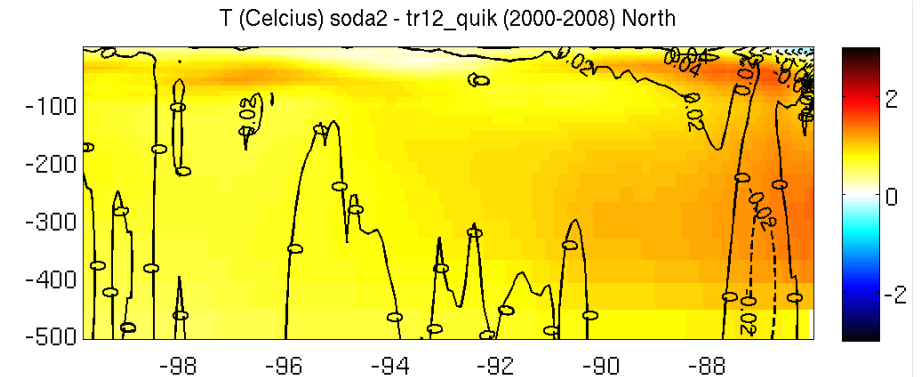
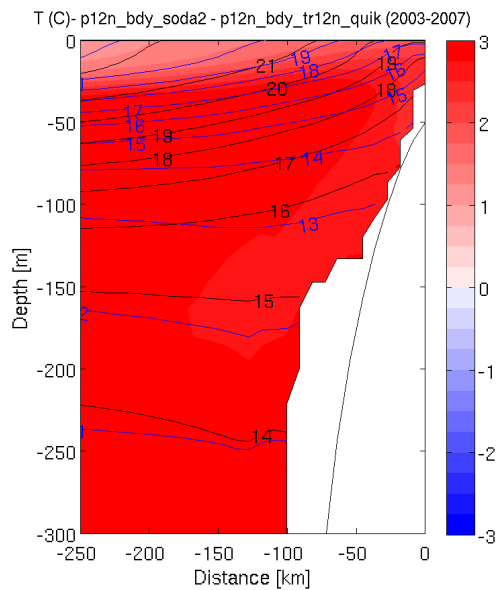
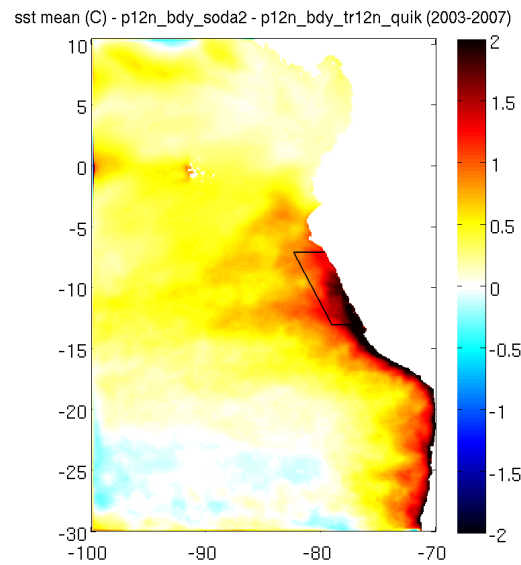
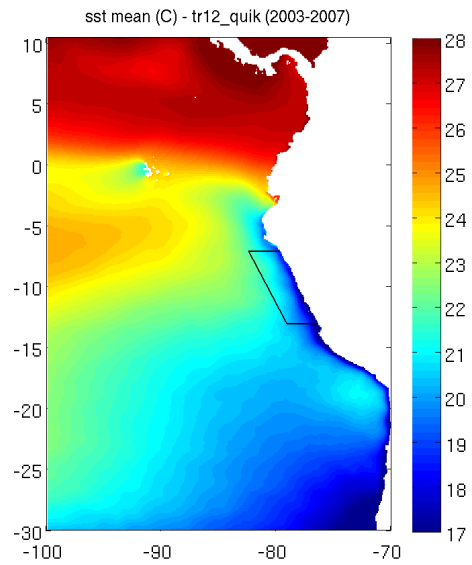


2 - Ariane comparaison BDY soda2/trop12_quik

Ariane comparaison BDY soda2/trop12_quik

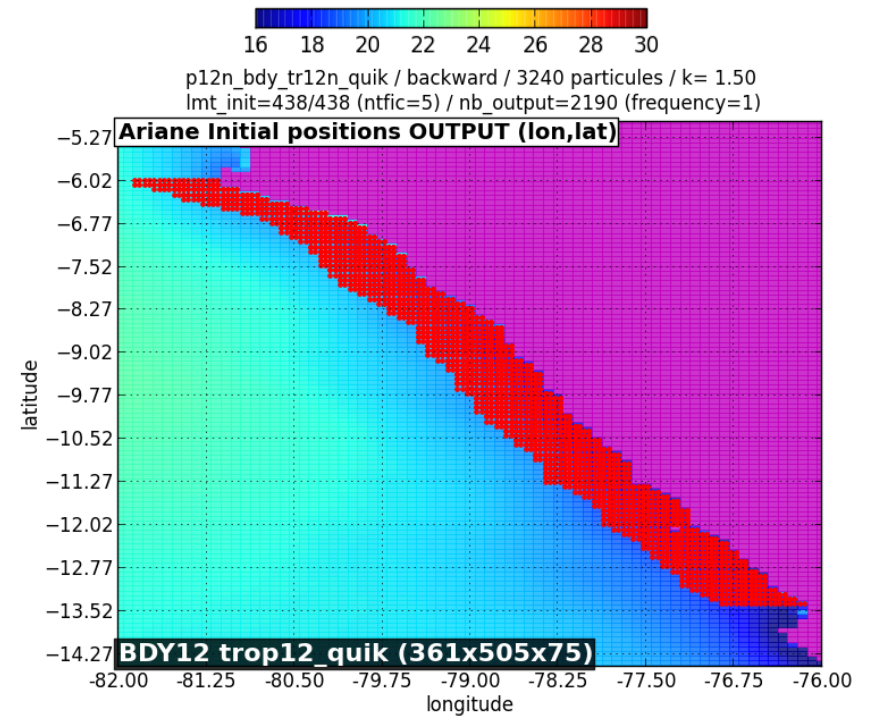
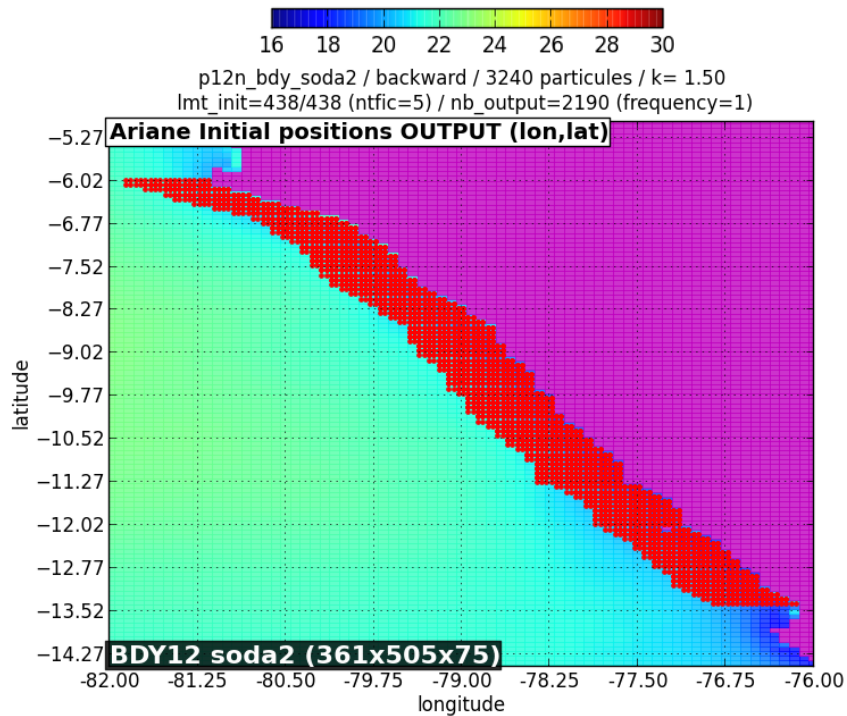
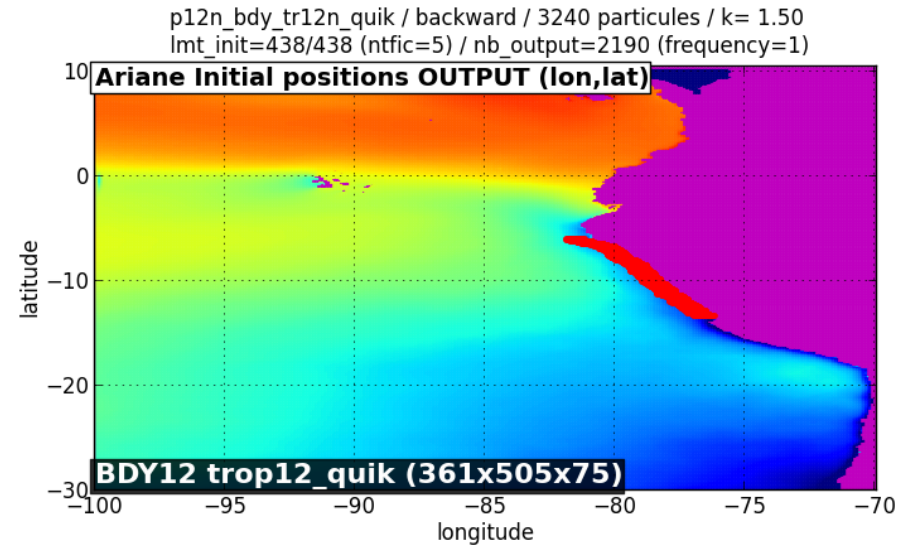
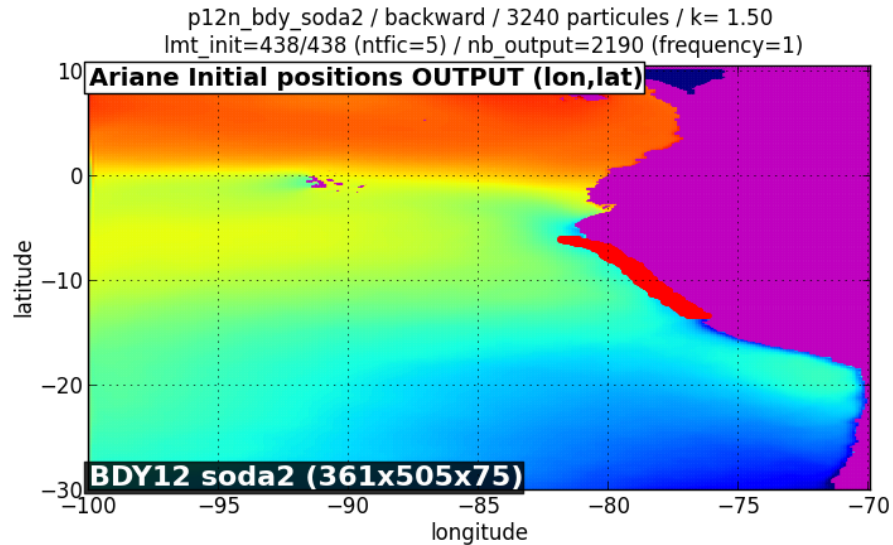
Impact des frontières (soda2/trop12_quik)

BDY_soda2 - BDY_trop12_quik



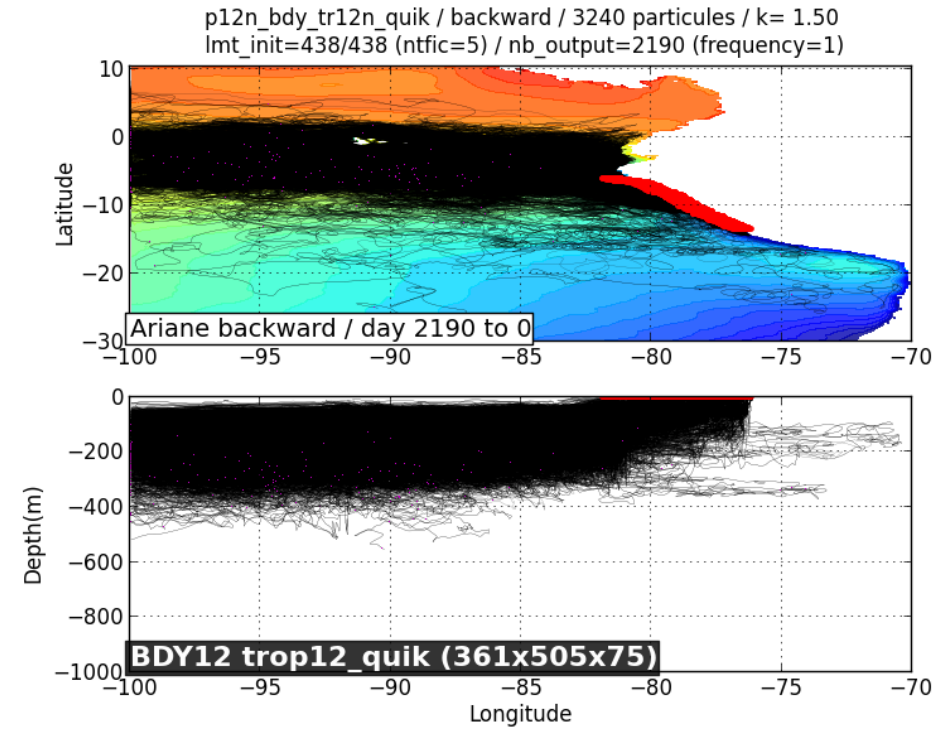
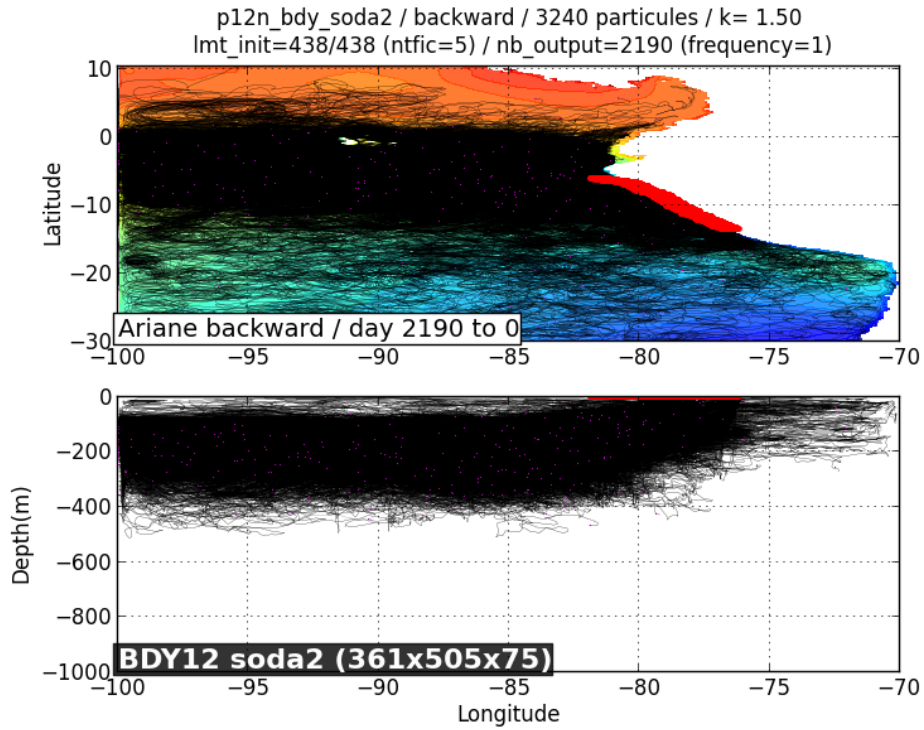
Ariane comparaison BDY soda2/trop12_quik

Position initiales des 3240 particules le long de la côte



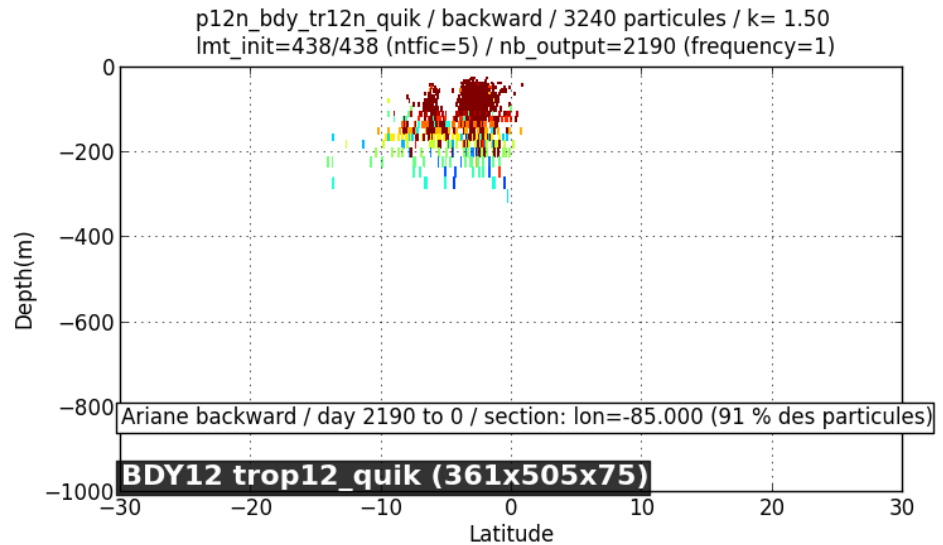
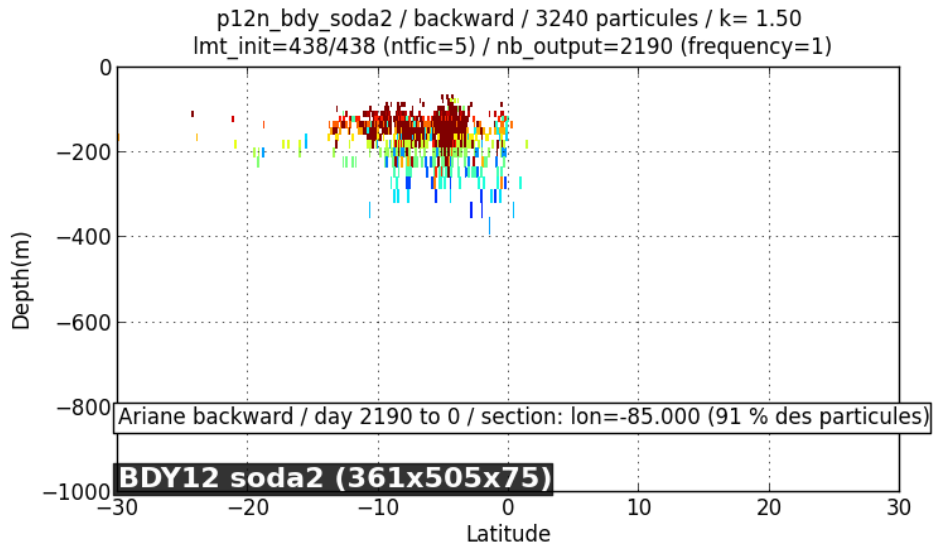
Ariane comparaison BDY soda2/trop12_quik

BACKWARD des 3240 particules de 2008 => 2003

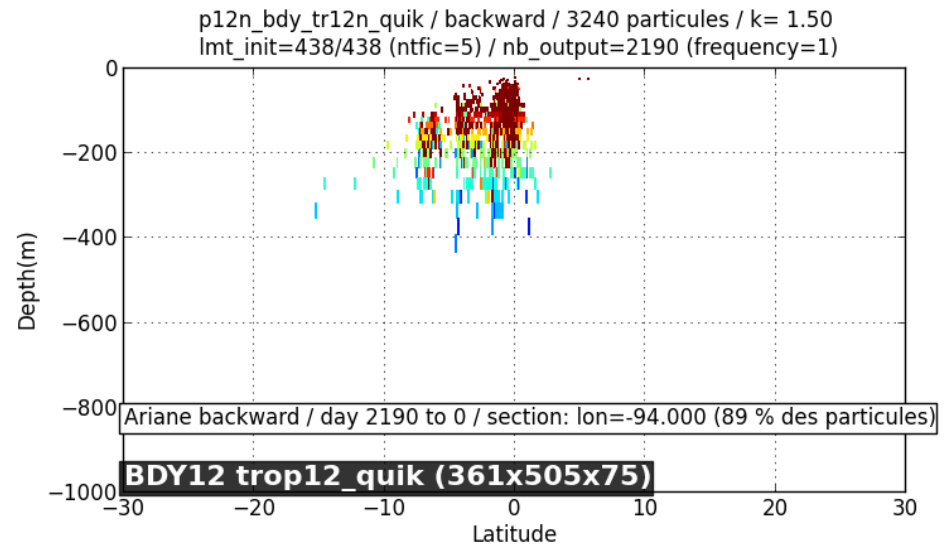
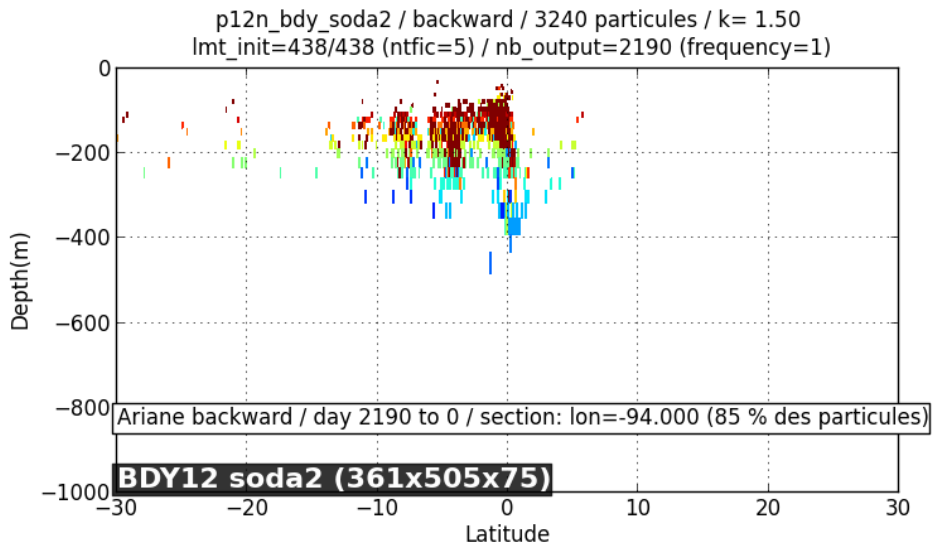


Ariane comparaison BDY soda2/trop12_quik

Section à l'Est des Galapagos (85W) - 3240 particules



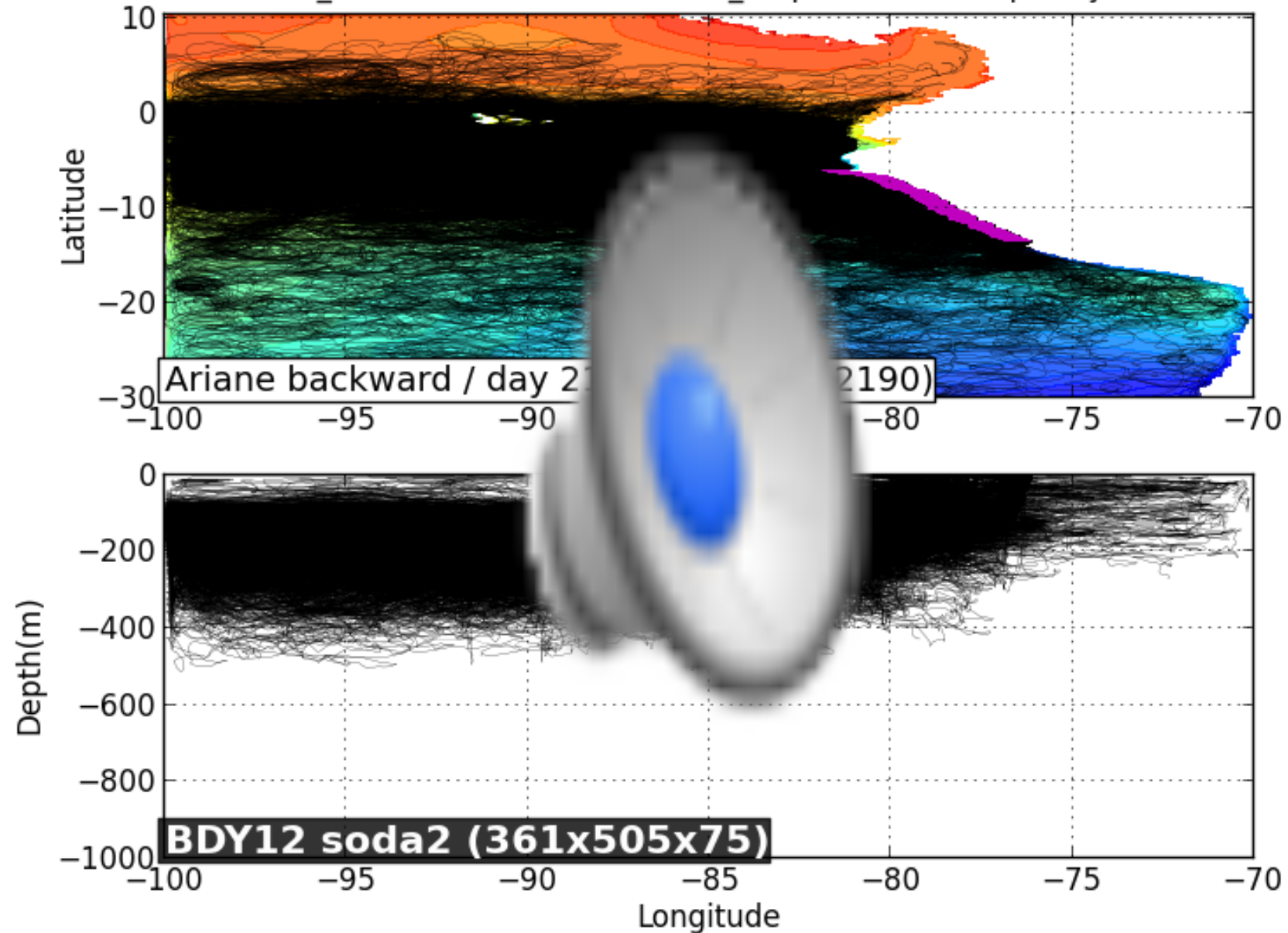
Section à l'Ouest des Galapagos (94W) - 3240 particules



Ariane comparaison BDY soda2/trop12_quik

(Animation BDY_soda2 2008- > 2003)

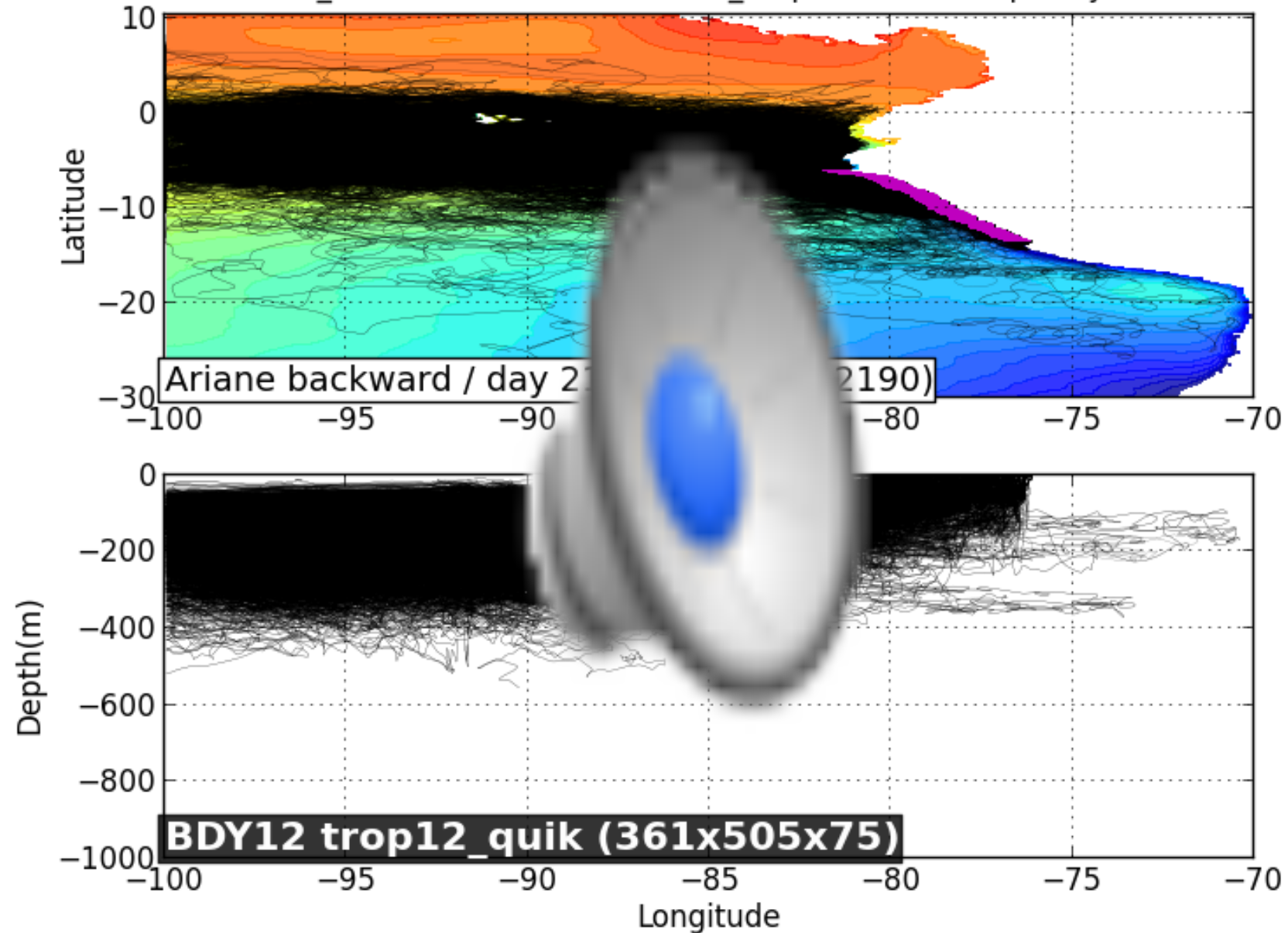
p12n_bdy_soda2 / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)



Ariane comparaison BDY soda2/trop12_quik

(Animation BDY_trop12_quik 2008- > 2003)

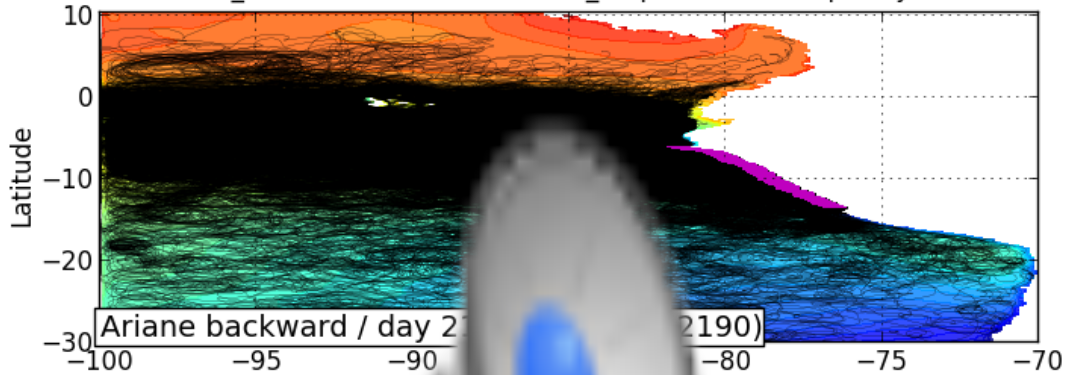
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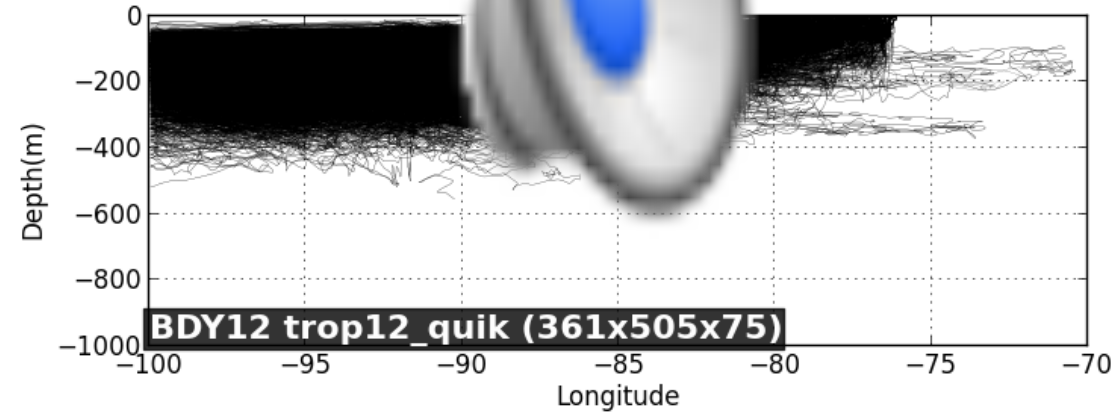
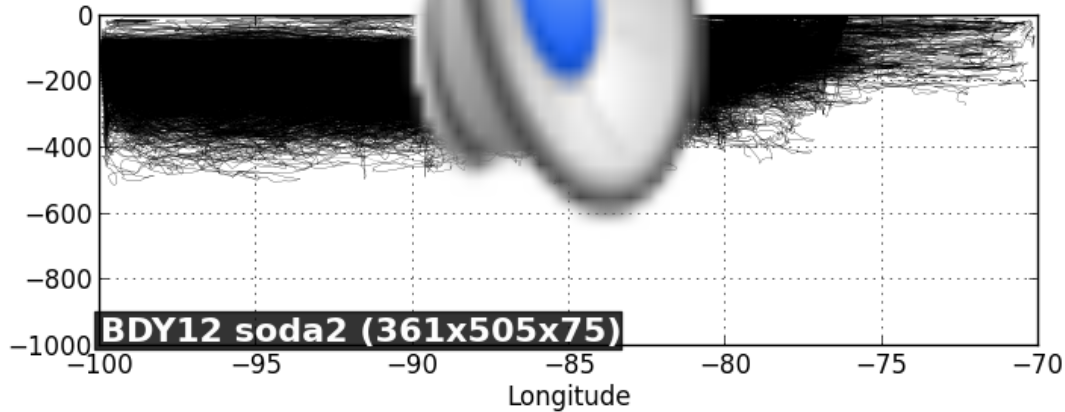
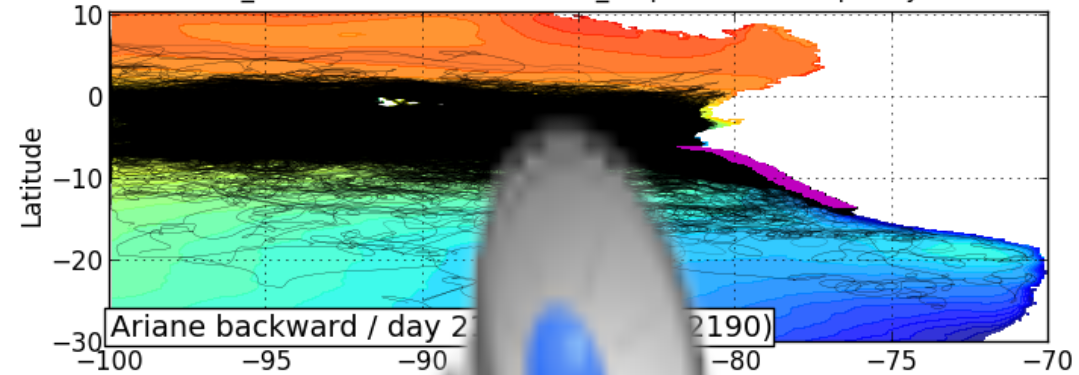
Ariane comparaison BDY soda2/trop12_quik

(Animation BDY soda2/trop12_quik 2008- > 2003)

p12n_bdy_soda2 / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)

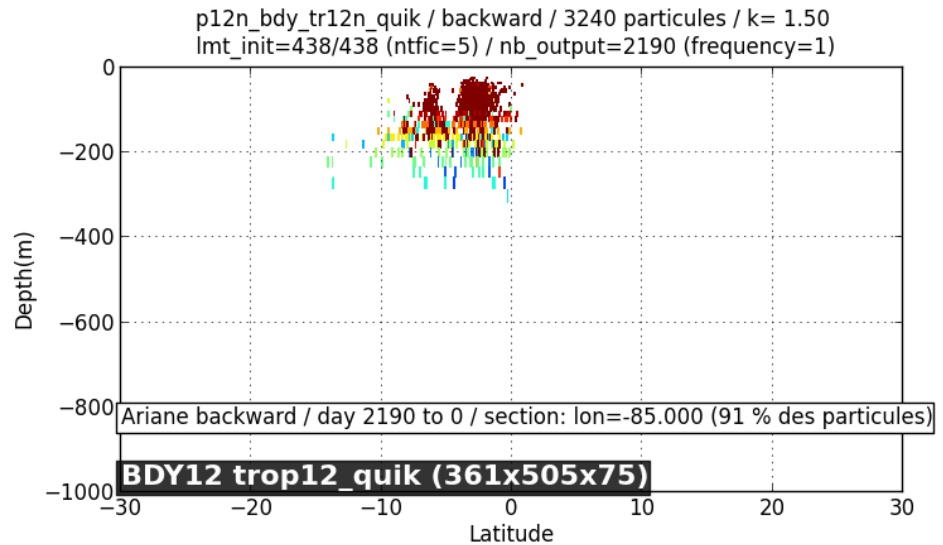
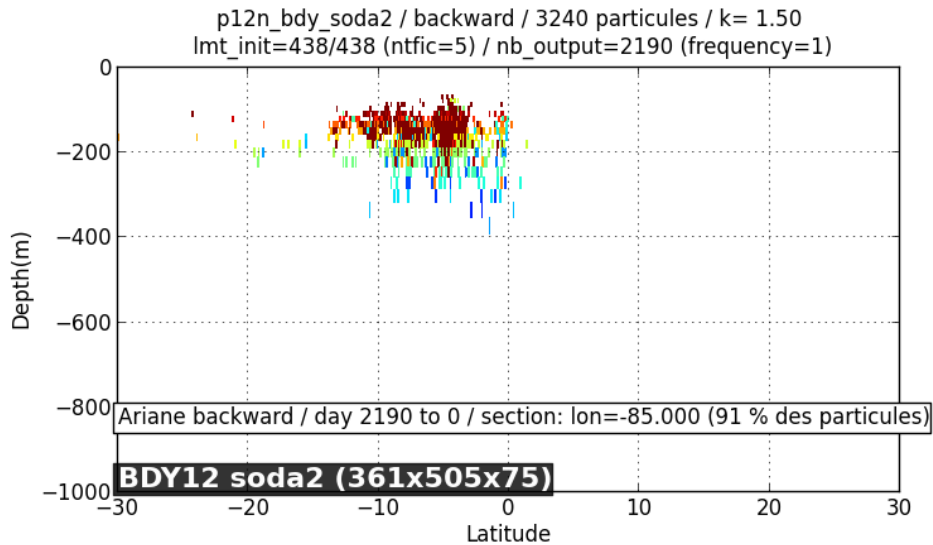


p12n_bdy_tr12n_quik / backward / 3240 particules / k= 1.50
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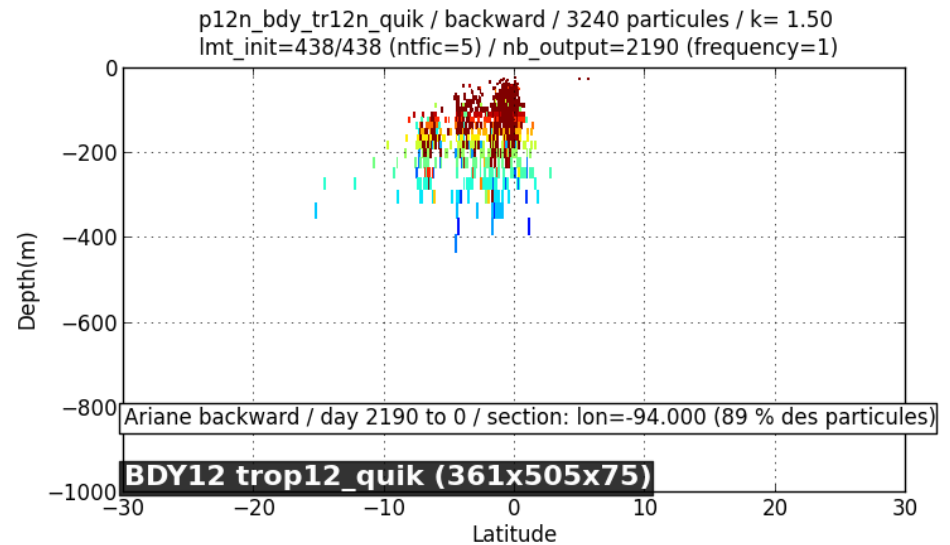
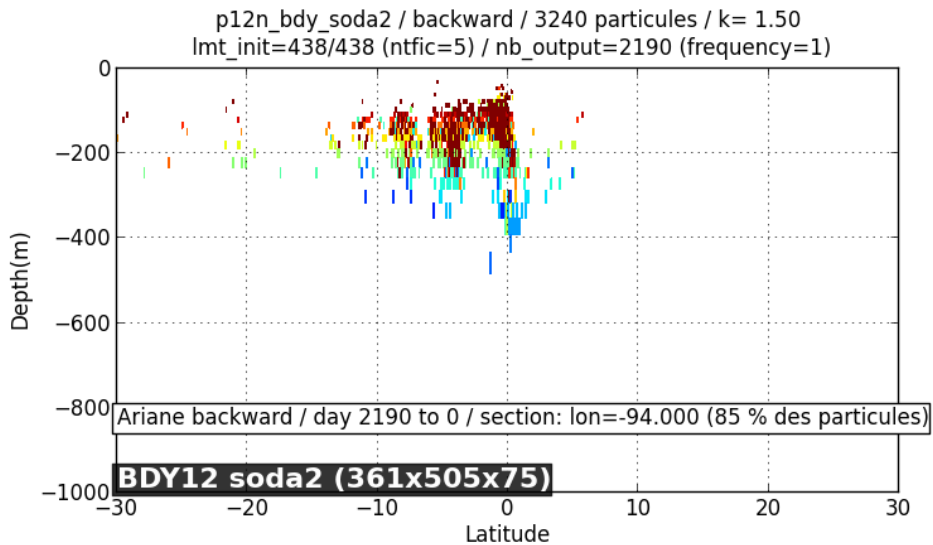


Ariane comparaison BDY soda2/trop12_quik

Section à l'Est des Galapagos (85W) - 3240 particules

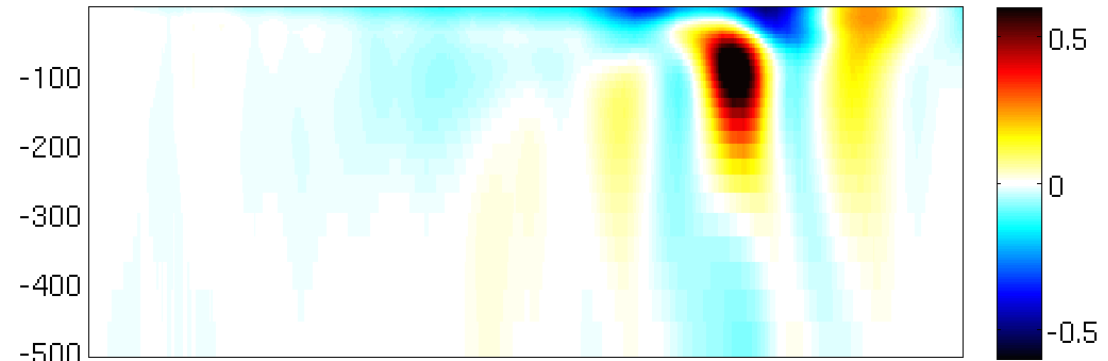


Section à l'Ouest des Galapagos (94W) - 3240 particules

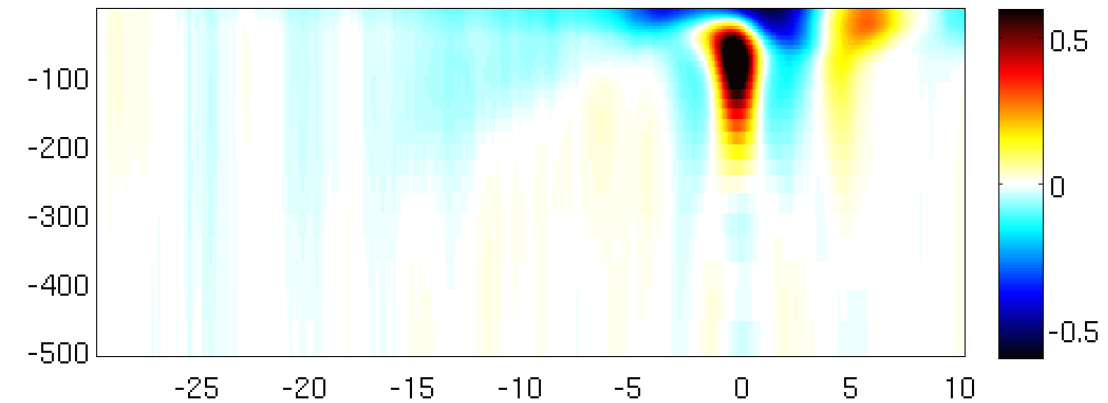


Ariane comparaison BDY soda2/trop12_quik

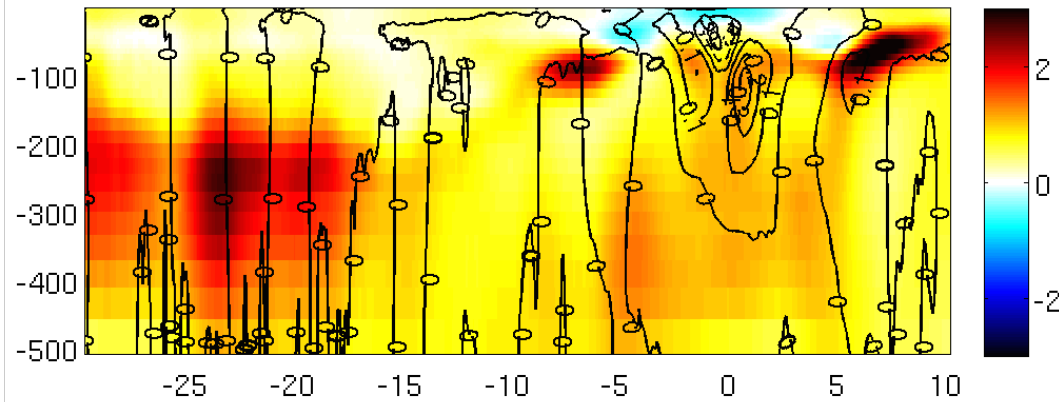
U (m/s) soda2 (2000-2008) West



U (m/s) tr12_quik (2000-2008) West

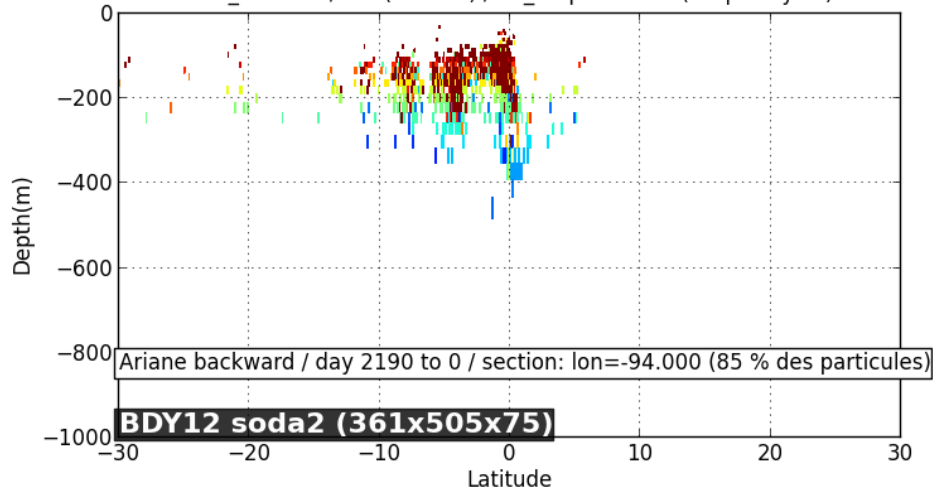


T (Celcius) soda2 - tr12_quik (2000-2008) West

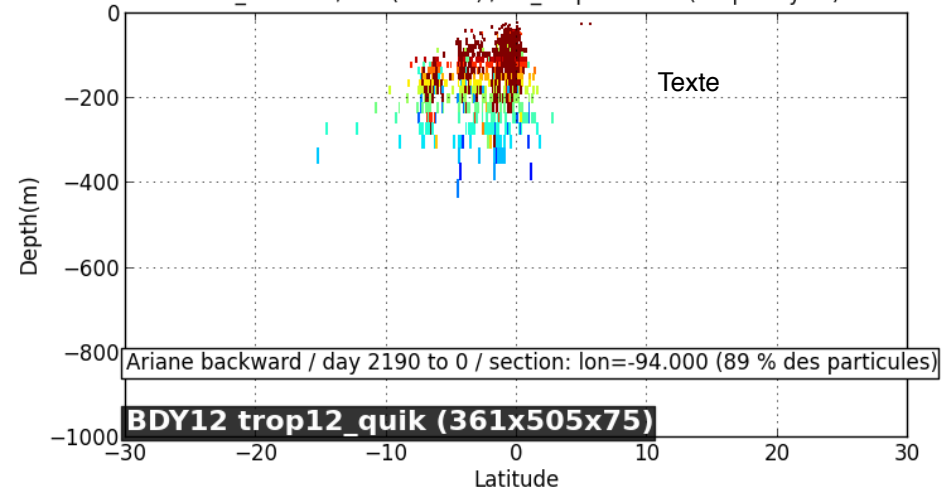


Section à l'Ouest des Galapagos (94W) - 3240 particules

p12n_bdy_soda2 / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)



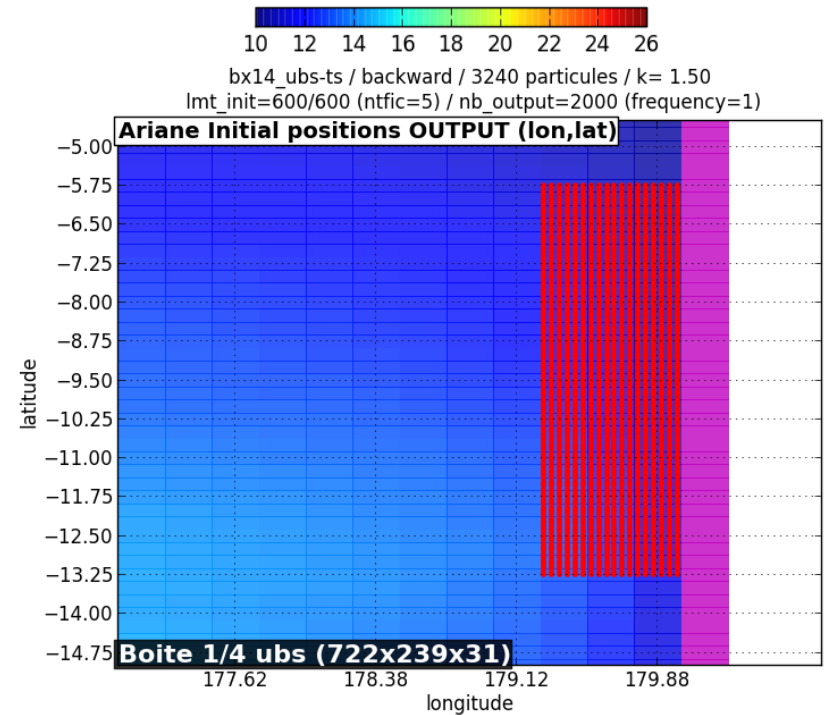
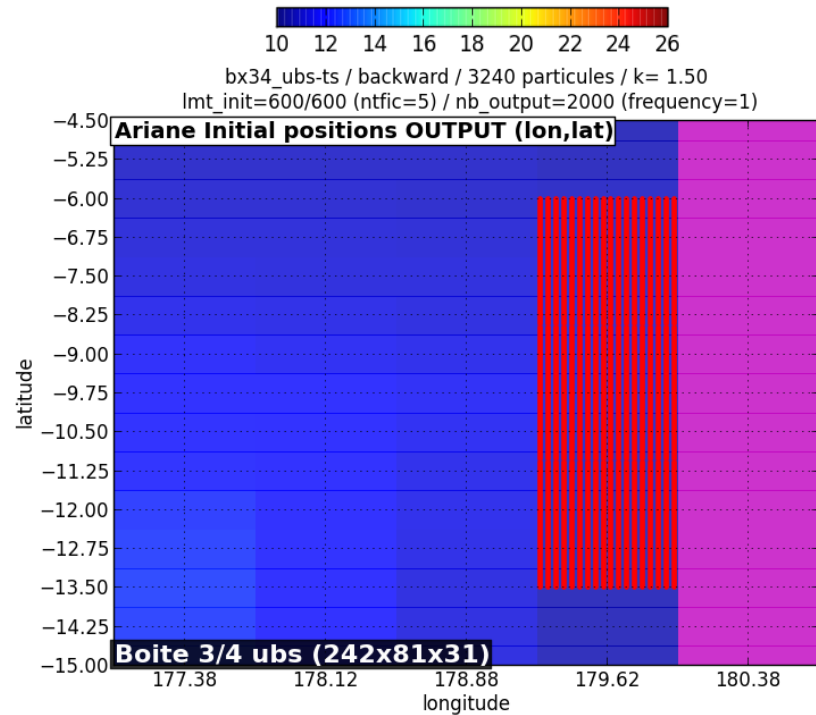
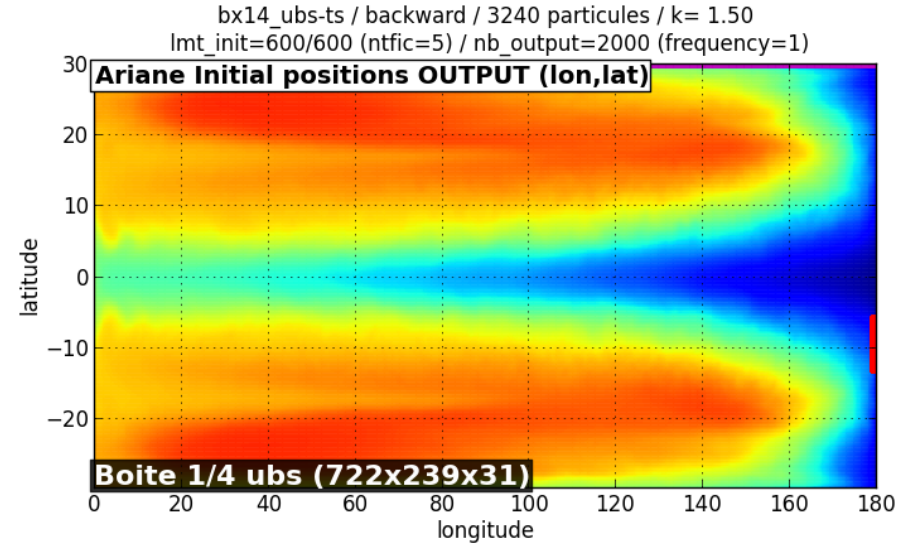
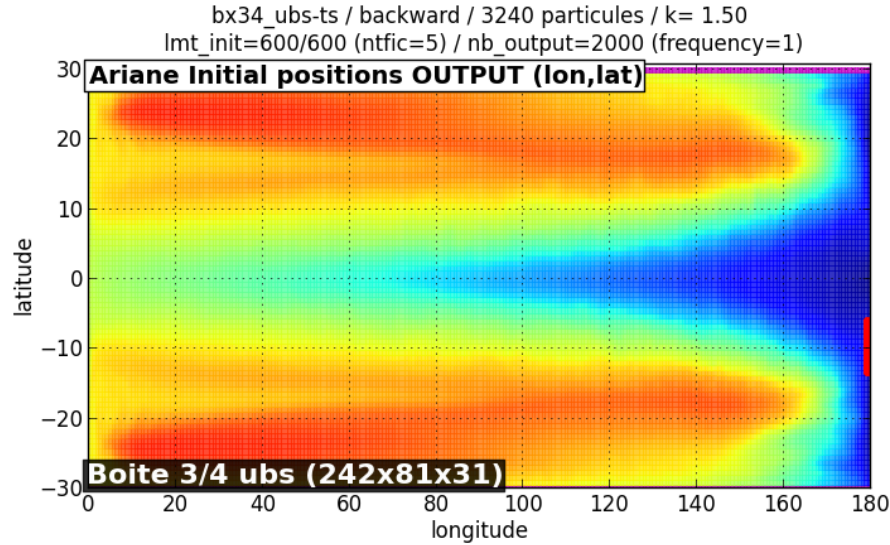
p12n_bdy_tr12n_quik / backward / 3240 particules / k= 1.50
lmt_init=438/438 (ntfic=5) / nb_output=2190 (frequency=1)



3 - Ariane dans la boîte équatoriale (bx34/ bx14)

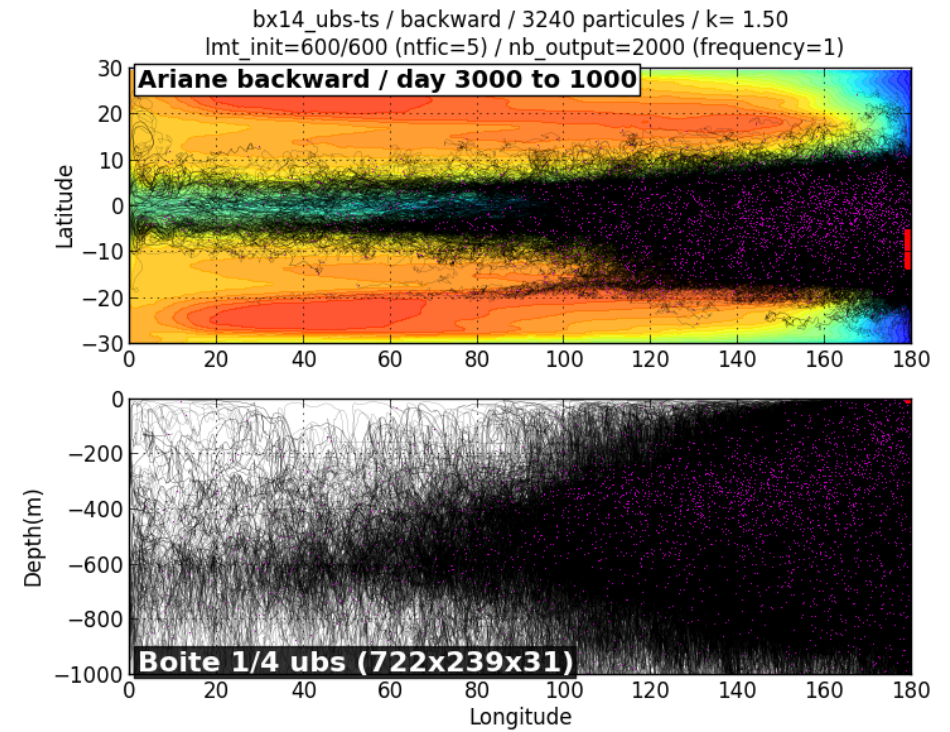
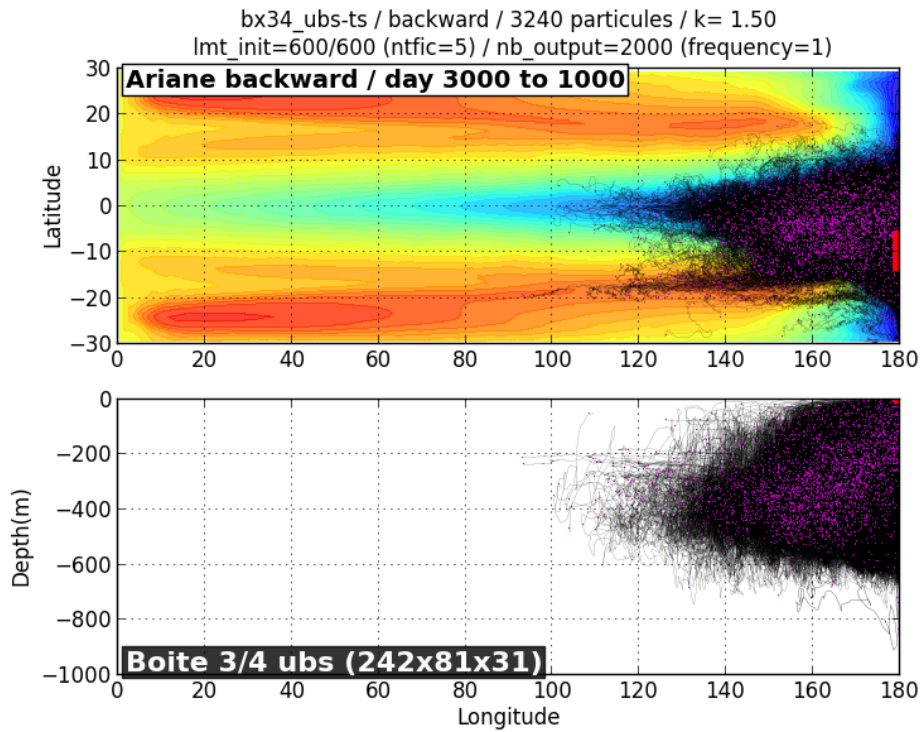
Boite équatoriale (bx34/ bx14)

Position initiales des 3240 particules le long de la côte



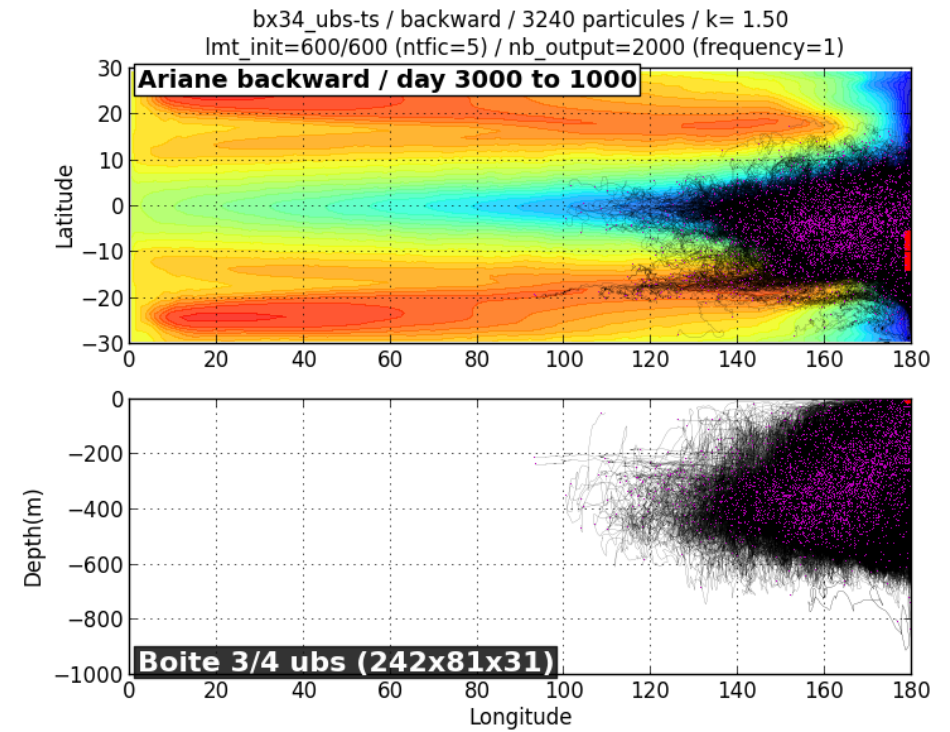
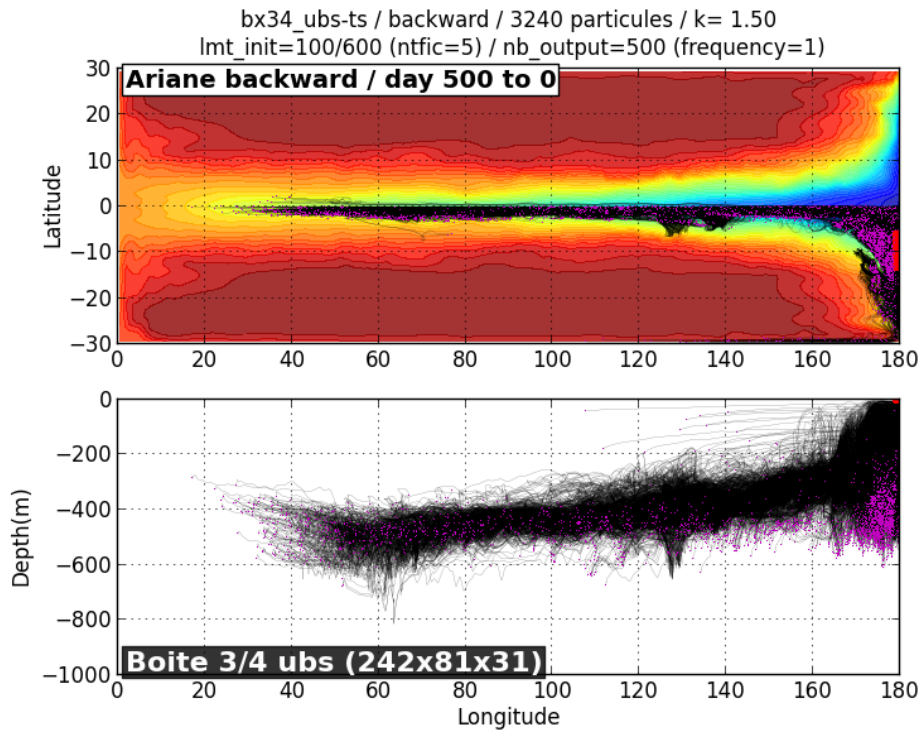
Boite équatoriale (bx34/ bx14)

BACKWARD des 3240 particules de 2008 => 2003



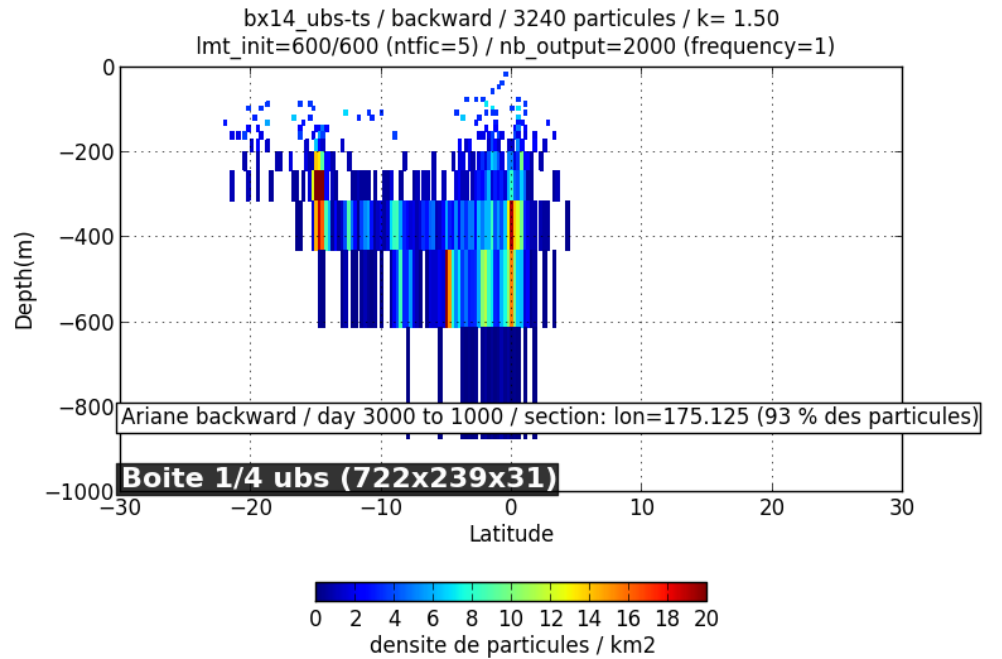
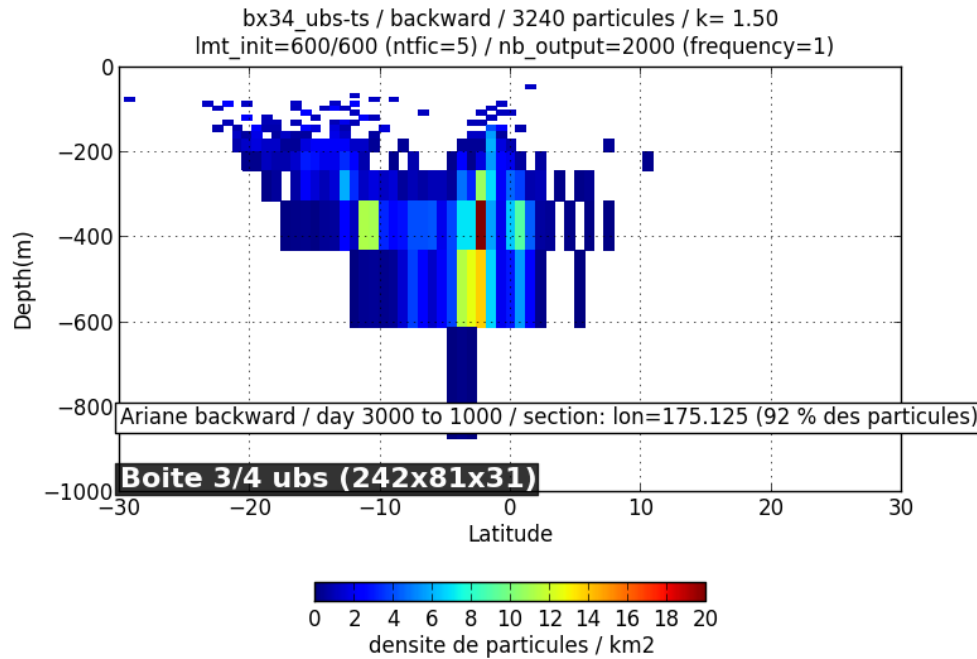
Boite équatoriale (bx34/ bx14)

BACKWARD des 3240 particules de 2008 => 2003
Jours 500->0 / Jours 3000->1000

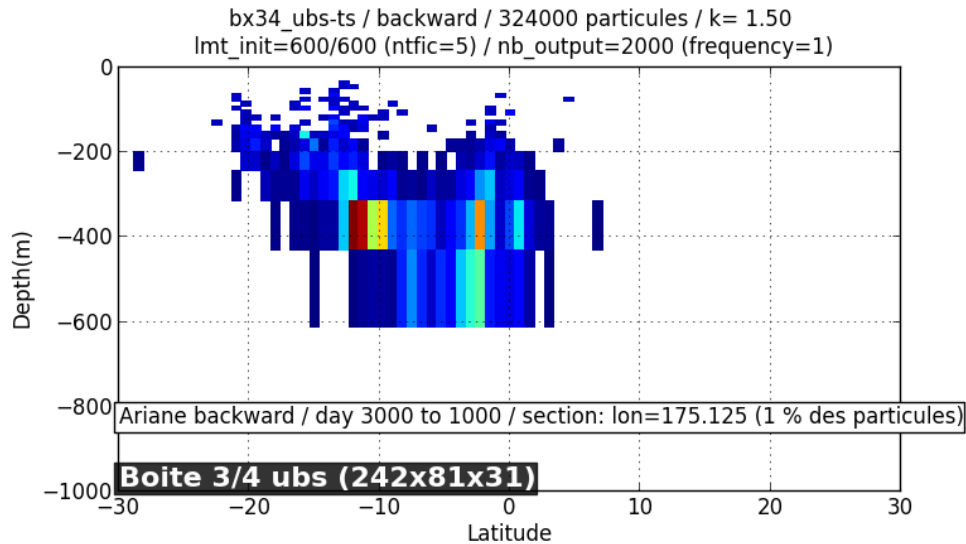


Boite équatoriale (bx34/ bx14)

Section (175.125) 3240 particules

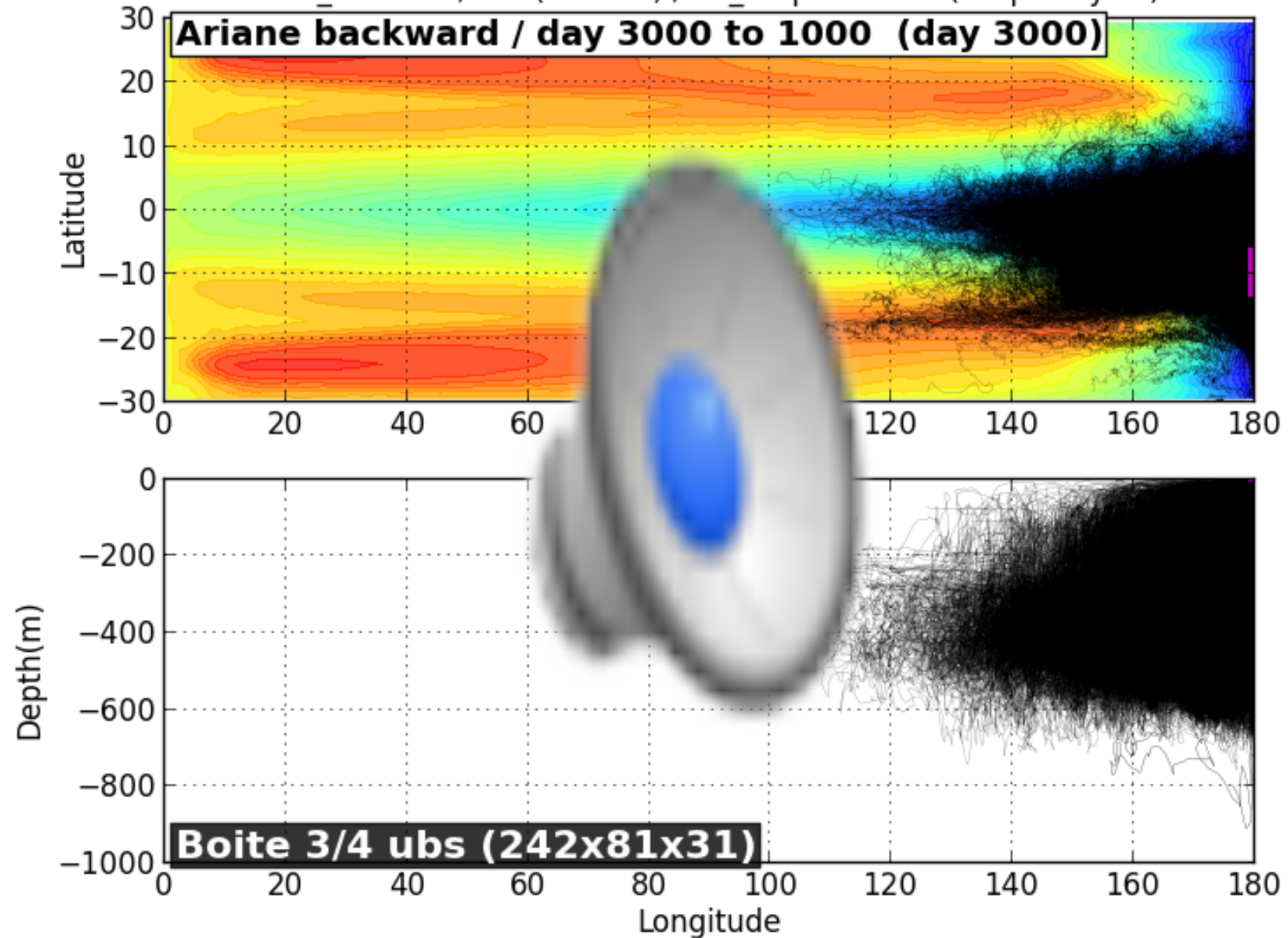


324.000 particules



Boite équatoriale (bx34/ bx14)

bx34_ubs-ts / backward / 3240 particules / k= 1.50
lmt_init=600/600 (ntfic=5) / nb_output=2000 (frequency=1)



Boite équatoriale (bx34/ bx14)

Sur les boites, l'EUC se dissipe... comment forcer correctement nos boites?

Conclusions

1. On a confirmé des connexions entre la circulation équatoriale et le système d'upwelling
2. Ces connexions changent avec la résolution du modèle (l'alimentation par l'EUC diminue quand la résolution augmente, au profit des tsuchiya jets)
3. Ces connexions peuvent avoir un impact fort sur la réponse locale de l'upwelling
4. Reste à quantifier tout ça pour les runs pulsation.