Review of the revised manuscript
The authors have adequately replied to my questions so I can recommend publishing the paper in AMT.

However, a small correction should be made. Although the main point of the paper is the new algorithm, confusion regarding to the old ones should be minimized.

On lines 287-289 it is written that

\[ f(\text{Tr})_{B1999} = \frac{1}{C_2 \text{Tr} + C_3} \]

where \( C_2 = 1.32 \) and \( C_3 = 0.87 \) (after combining Eq. (3) and Eq. (12) from Bond (1999)).

But this is not exactly correct. Let us check this and use the symbols in B1999.

Their Eq. (3):

\[ \sigma_{\text{PSAP}} = \frac{\sigma_{ap}}{2(0.5398 \tau + 0.355)} = \frac{\sigma_{ap}}{1.0796 \tau + 0.71} \]  \hspace{1cm} (3)

Eq. (12):

\[ \sigma_{ap} = \frac{\sigma_{\text{adj}} - K_1 \sigma_{sp}}{K_2} \]  \hspace{1cm} (12)

excluding the error terms \( \epsilon_{\text{slope}} \) and \( \epsilon_{\text{noise}} \). Here \( K_1 = 0.02 \) and \( K_2 = 1.22 \).

If you assume that \( \sigma_{\text{adj}} \) in (12) equals \( \sigma_{\text{PSAP}} \) of Eq. (3) you indeed get

\[ \sigma_{ap} = \frac{1}{1.22} \frac{\sigma_{ap}}{1.0796 \tau + 0.71} - \frac{0.02 \sigma_{sp}}{1.22} = \frac{\sigma_{ap}}{1.317 \tau + 0.866} - 0.016 \sigma_{sp} \]

and \( C_2 = 1.32 \) and \( C_3 = 0.87 \) like you claim. But here is the error.

B1999 did not combine Eqs. (3) and (12). In Eq. (12) there is \( \sigma_{\text{adj}} \) presented in their Eq. (4):

\[ \sigma_{\text{adj}} = \sigma_{\text{PSAP}} F_{\text{flow}} F_{\text{spot}} \]  \hspace{1cm} (4)

Here the spot size correction factor \( F_{\text{spot}} \) is presented in their Eq. (6) that has some typing errors, unfortunately which has confused PSAP users for 2 decades. There is an additional factor of 0.873 that can be obtained from the ratio of the original PSAP firmware \( A = 17.83 \text{ mm}^2 \) and their calibrated spot size \( \pi(5.1 \text{ mm}/2)^2 = 20.43 \text{ mm}^2 \).

For an explanation of this factor see Sheridan et al. (2005) or even a more detailed explanation in Ogren (2010).

Therefore the original B1999-corrected equation is

\[ \text{Babs} = \frac{1}{1.22} \left( \frac{0.873}{1.0796 \tau + 0.71} \text{Batt} - 0.02 \text{Bscat} \right) \approx \frac{1}{1.5087 \tau + 0.992} \text{Batt} - 0.016 \text{Bscat} \]

\[ \Rightarrow C_1 \approx 0.016, \ C_2 \approx 1.509, \ C_3 \approx 0.992 \]

Ogren (2010) only added a very small adjustment factor, 0.97, so that the equation becomes
\[
\text{Babs} = \frac{1}{1.22} \left( \frac{0.97 \cdot 0.873}{1.079 \text{Tr} + 0.71} \right) \approx \frac{1}{1.556 \text{Tr} + 1.023} \text{Bn} - 0.016 \text{Bscat}
\]

\[\Rightarrow C_1 \approx 0.016, \quad C_2 \approx 1.556, \quad C_3 \approx 1.023\]

Since you have used the latter values in your data processing when you used B1999 there is no need for recalculations. Just rewrite the text on lines 287-297 so that no more confusion is added in the literature concerning B1999.