Corrections

Below I present a list of corrections on publications where I am involved in. Occasionally, I credit the person who brought this to my attention, but more frequently I may have forgotten the messenger. Comments and further corrections are welcome.

Ormel et al. (2007)

Figure 2: The values for the enlargement factor ψ given here are erroneous.

Ormel et al. (2009)

Equation A1: There should not be a factor of π in this equation.

Ormel & Klahr (2010)

Equation 25: The factor 2 in front of the integral should be removed.

s. above eq.37: The numerical factor should be $1.5 \times 10^{-2}\,M_\oplus\,\mathrm{yr}^{-1}$, a factor of 10 smaller than stated.

Equation 37: The multiplication operator ($\times$) should instead be a division / (Large pebble scaleheight decreases the efficiencies).

- python scripts calculating pebble accretion rate efficiencies are available on github
- Willy Kley had pointed out some of these mistakes to me.

Ormel & Kobayashi (2012)

Table 4: The third condition should read $\tau_{\mathrm{fr}} \geq \max[\tau^*, \zeta_w]$ and the definition of τ^* as stated in the table note should read $\tau^* = \min(12/\zeta_w^3, 2)$.

Equation C4: This is now superseded by Okuzumi & Ormel (2013) where $\gamma_t = 5 \times 10^{-3}\alpha_{\mathrm{ss}}^{1/2}$ has been employed. This affects the expressions below.

Schoonenberg & Ormel (2017)

Equation 10: The factor 4 should be removed from this equation. The integral over the velocity distribution amounts to

$$\int_0^\infty vP_N\left(v \,\middle|\, \frac{kT}{\mu_Z}\right) = \frac{1}{4}v_{\mathrm{th,Z}}. \tag{1}$$

where P_N is the normal distribution. Multiplied by $4\pi\sigma$, this gives the rate expression (the factor 4 drops out).

- Note that this expression assumes the ballistic approach limit. At high densities, the rate expression is dictated by the diffusion limit.
- This expression may also be erroneous in some of the cited references above Equation 10.

- Thanks to Til Birnstiel for pointing out this mistake.

Equation 34: This should be $\dot{M}_{\rm ice}$ instead of $\dot{M}_{\rm gas}$.

Ormel et al. (2015)

Sect. 2.1 2nd par: The expression for the Coriolis force should read $\boldsymbol{F}_{\rm cor} = -2\Omega \times \boldsymbol{v}$, including the minus sign.

Visser & Ormel (2016)

Equation 21: There should be a minus sign within the argument of the exponent.
Comment: in later works (Liu & Ormel 2018; Ormel & Liu 2018), the exponential factor is denoted $f_{\rm set}$ (or rather $f^2_{\rm set}$ as we are talking about a 3D problem here) and is written as

$$f^2_{\rm set} = \exp\left[-\left(\frac{\Delta v}{v_*}\right)^2\right] \tag{2}$$

with $v_* = (q_p/\tau_s)^{1/3} v_K$ where $q_p = m_p/m_\star$ the dimensionless planet mass, τ_s the Stokes number, and $v_{\rm K}$ the local Keplerian velocity. This expression follows from (but it is not identical to) eq.26 in VO16 if we take the settling expressions listed in Table 4 and $\mathrm{St} = \mathrm{St}_*$:

$$\begin{aligned} f_{\rm set-VO16} &= \exp\left[-2.26(St/2\Theta)^{0.61}\right] &(3)\\ &= \exp\left[-2.26((\Delta v)^3 t_{\rm stop}/4Gm_p)^{0.61}\right] &(4)\\ &= \exp\left[-0.97(\Delta v/v_*)^{1.83}\right] &(5)\end{aligned}$$

The numerical factors in Eq. (5) are arguably more precise as they have been directly fitted.

Equation 25: The numerical prefactor should read 450 km.

Ormel & Liu (2018)

Equation 41: The modulation with $f_{\rm set}$ factor has already been applied above. So Equation 41 just reads: $\varepsilon = \varepsilon_{\rm set} + \varepsilon_{\rm bal}$.

Ormel & Liu (2018)

Table 1: Sign error in the latent heat of silicates, $u_{\rm evap}$, which should read $1.5 \times 10^{11}\,\mathrm{erg\,g^{-1}}$.

Huang & Ormel (2023)

Equation 7: The definition of γ_I is at odds with the literature, where the non-dimensional torque is usuall defined as $\gamma = \Gamma/m_p(r\Omega)^2$ with m_p the planet mass, r the semi-major axis and Ω the Keplerian orbital frequency. Therefore, the definition of γ_I in the line below Eq.7 is wrong. It should be inversed. This mistake has affected Figure 8 and 9 and the conclusion (ii) about the C_e parameter. An errata is under way.

References

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