The manuscript has improved considerably, the issues I have to address are only related to the presentation quality.

Citations:

- *Jorand et al*. 2010 (line 67/68) and *Blunt et al.* 2002 (line 71/72) are cited but not listed in the references

- *Finjord et al.* 2006 and *Kleinberg* 1996 are listed in the references but not cited in the manuscript

Units:

- There should be one consistent unit for ρ_s : Figure 6, Figure 8, Figure 9, Figure 11
- It will be easier to compare if one consistent decay time (e.g. seconds) is used for all figures (some are in ms, others in s) (e.g. Fig. 10)

- Figure 14: Pore size is given in m, caption in µm

Grammar/Sentence structure/General:

Line 8-10: This sentence is a bit confusing. Please revise .

Line 13 "…~~cannot~~ do not…"

Line 20 "…the NMR amplitudes and NMR relaxation times at partial water saturation strongly depend on pore shape, even so the NMR relaxation times at full…"

Line 22-26 I suggest to revise this paragraph since it sounds redundant. ("The pore-shape-dependence at partial saturation arises from the pore shape…") Further, it is not obvious what are the investigations/conclusions of the authors and what are general statements.

Line 31 "…in the presence…"

Line 54"…either contribute to an NMR response or not."

Line 128 "…empties as the non-wetting ~~fluid~~ phase…"

Line 135 ~~Note~~ "The permeability…"

Line 138 "…and k, ~~being~~ a…"

Line 156 " ...area A_Δ which is…"

Line 158 "~~Above~~ Equations 7a+b can be…~~when~~ if…"

Line 164 "…, where the pore always…"

Line 165 "…, where two separate…"

Line 171 "…simulations by means of the…"

Lines 174 – 177 I suggest to skip these lines since it was already part of the introduction. Start with "The measured NMR…"

Line 187 "…lose their magnetization due to ~~magnetic interactions~~ paramagnetic impurities and reduced correlation times at…"

Line 194 "…pore volume several times with…"

Line 225 "~~Illustrated in~~ Fig. 8 illustrates the pressure…"

Line 227 "…evolution of the longitudinal…"

Line 262 "~~Note~~ The above…"

Line 270 "Thus, …saturation the…"

Line 272"…saturation it is…"

Line 274 "…Stingaciu, 2010b). We are going to demonstrate that this is valid for cylindrical…"

Line 286- 290 I suggest to revise this sentence since it is not fully clear to me "Following from…" (e.g. As a consequence of the reduced geometry concept the remaining water can be considered as similar in size and shape for all pores due to the identical NMR relaxation times and thus only depends on pressure and not on pore size.)

Line 297 "… we applied…"

Line 299 "…sections in order to study how pore shape affects the ~~typically shown~~ relaxation…"

Line 300 "…imbibition with ~~water as wetting and~~ air as the non-wetting…"

Line 303 "Herein, ~~to clarify the subsequent discussion~~ we focused only on the…"

Line 304 "~~Note, that~~ Other…~~will~~ would…"

Line 310 "The corresponding…" (skip underline for relaxation)

Line 312 "… and a water bulk…"

Line 325 "…but also shift towards the outside of the initial…"

Line 327 "…relaxation times at low saturation~~s~~…"

Line 328 "…times normalized on the…"

Line 342 I could not figure out what you mean by "…influence both NMR and flow properties." (Which NMR properties you are referring to?)

Line 343 "… which ~~again~~ in turn depends on the pore shape if considering…"

Line 344 "…pore shape ~~even more~~ strongly influences…"

Line 346 "…angular capillaries ~~also~~ contribute…signal even after…due to the water…in the pore corners."

Line 351 “…on pressure and not on pore size.”

Line 351 – 352 I could not figure out what you mean by “…influence both NMR and flow properties.” (Which NMR properties you are referring to?)

Line 353 “…ratio and not on the pore shape. In contrast, the water distribution...”

Line 355 “~~Thus~~ Therefore, it can be noted that the NMR… affected by ~~not only~~ the surface- to volume ratio and the pore shape.”

Line 358 “…simulating the…”

Line 360 “…relaxation times always below the initial distribution enveloped under full saturation conditions. ~~which~~ This is …” (I suggest to add a reference for “…observed in experimental NMR data for rocks…”)

Line 364 “… obtained ~~on~~ from partially…”

Line 365 “…at the laboratory…”