

**Subject:** Re: New version

**From:** Robert Laing <rlaing@eso.org>

**Date:** Tue, 8 Nov 2005 16:48:49 +0100

**To:** Bill Cotton <bcotton@nrao.edu>

**CC:** Alan Bridle <abridle@nrao.edu>, jcanvin@physics.usyd.edu.au

Quoting Bill Cotton <[bcotton@nrao.edu](mailto:bcotton@nrao.edu)>:

Robert,

It's looking pretty close. The only substantive comment I have is that there is an analogy with 3C31 that could be commented on. The size scale in NGC315 for all the various jet features is substantially larger than in 3C31 for which there is similar linear resolution. However, the RMS RM fluctuations are 10x lower in NGC315. If the RMS is proportional to the mean plasma density (or even close) then the IGM around NGC315 is much more tenuous than 3C31. If the various flaring, recollimation etc, are largely determined by the external medium, then the apparent difference in external density between 3C31 and NGC315 could explain the difference in size scale of the jet features.

Dear Bill

Yes, I agree. In fact, the observed X-ray densities are very different too. The only question is whether to put a short reference here or to reserve it for the paper on conservation-law analysis (where it will get heavily emphasised).

What do you (and others) think?

Minor comments:

- Introduction. Most of the discussion of features is in terms of angular distance from the core which helps identify them on figures. However, the the list in the introduction (ii) the distances are given in kpc. It might be worth giving angular distances parenthetically.

Good idea. This is a perennial source of confusion.

- Sect 4.3. The opening of this section is partially redundant with Section 4.2, 3rd paragraph. A backwards reference to the tomographic

technique may be sufficient.

Will tweak.

Thanks

Robert

**Subject:** Revised version of model paper

**From:** rlaing@eso.org

**Date:** Mon, 18 Jul 2005 14:01:06 +0200 (CEST)

**To:** James Canvin <jcanvin@physics.usyd.edu.au>, Bill Cotton <bcotton@nrao.edu>, Alan Bridle <abridle@nrao.edu>

Dear James, Bill and Alan

Here is a revised version of the model paper, incorporating changes prompted by Paddy's comments, essentially as discussed. The new Fig 5 is as produced by Bill a few days ago, changed slightly in style to match the others. The main changes to the text are a new paragraph in Section 3.2 expanding on the issue of bends, and some alterations referring to the new figure. A suggested reply with more detail is attached.

Please let me know if you are happy to resubmit this version. [Alan - you will probably get this on your return; I think that the changes are all more-or-less as agreed, so I trust that you won't mind our going ahead if you don't see this immediately.]

Cheers

Robert

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We thank Paddy Leahy for his helpful report. We have modified the paper to take account of his comments (see below) and hope that the revised version will be acceptable for MNRAS.

Regards

Robert

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REFEREE'S REPORT (our comments indented)

This is an excellent paper, with very careful modelling of excellent observational data. It should be published almost as it stands.

My one whinge is that it is a bit of a cop-out to consider such a small section of such a long jet (especially given the title of the paper: "A model of the flaring region of the radio jets..." would be more accurate).