REVIEW 2: Hugo Ortner (University of Innsbruck)				
Point No.		Remark of the referee	Comment of the authors	
Specific comments	1	**page 2 line 49-50:** 'the authors describe the unconformity at the base of the foreland succession as a result of "…the Late Cretaceous-Paleocene contractional event as consequence of the change in the African plate motion…". However, in most publications on the Alpine Foreland Basin, this unconformity is referred to as the "foreland unconformity", which has been described as a result of the passage of the forebulge rolling through. In their figure 3, the authors label the unconformity as the foreland unconformity. This should be discussed in this paragraph.	**agree**	We thank the referee for noticing a very important point on the origin of the foreland unconformity. We admit that in our description of the geological setting and in the further interpretation of the faulting phases, we overlook the forebulge hypothesis that was first expressed by Allen et al. (1991), concerning the formation of the basal unconformity of the Molasse Basin. The documented features of this unconformity, such as the NW-directed truncation of the Mesozoic and the progressive onlap of the syn-orogenic deposits onto the peneplained Mesozoic rocks, directed roughly parallel to the Alpine front (Lemcke, 1988, Freudenberger & Schwerd, 1996), clearly points to the forebulge erosion. Allen et al. (1991) puts a temporal constraint on the initial forebulge uplift to the Pliocene times, based on the age of the flysch sediments that conformably overlay the Mesozoic basement in the Ultrahelvetic realm. It has also been recognized that the Mesozoic rocks had been partially and presumably locally truncated, prior to the Pliocene times, during the Sanonian compressional deformation (Lemcke, 1981; Ziegler, 1990; Bachmann and Müller, 1991; Roeder and Bachmann, 1996). Ziegler (1987, 1990) associates this compressional deformation with the initiation of the Alpine thrusting. However, Kley and Voigt (2015) argue for a Late Cretaceous contractional pulse, characterized by the NNE—SSW-oriented thrusting, which is the result of the change in Africa's motion relative to Europe from the SSE-directed sinistral transform motion to the NE-directed convergence. Considering these interpretations, we can thus conclude that the basal foreland unconformity represents a composite hiatus due to the Late Cretaceous basin inversion (unrelated to the early Alpine orogeny) and the Palaeogene passage of the forebulge. The corresponding paragraph in the "Geological Setting" chapter will therefore be modified accordingly as follows: "The sedimentation of the Mesozoic passive margin terminated with the onset of Late Cretaceous compressional deformation. It is widely accepted to have been caused by the inception of the NW-directed Alpine thrusting (Ziegler, 1987, 1990). However, Kley and Voigt (2015) argue that the Late Cretaceous pulse of the NNE—SSW-oriented contraction reflects the change of Africa's motion relative to Europe from south-easterly to north-easterly. As the result of the Late Cretaceous intraplate contraction, the Mesozoic passive margin was subjected to localized inversion and erosion (Bachmann and Müller, 1991; Roeder and Bachmann, 1996). Throught the Palaeocene to Middle Eocene the Alpine foreland was exposed to widespread erosion (Lemcke, 1981) due to the migration of the flexural forebulge in advance of the Alpine orogen (Allen et al., 1991). Subsequent flexural subsidence in the GMB began in the Late Eocene, marking the onset of foredeep sedimentation. As the Alpine orogen continued to move forward, the basin fill progressively onlapped in NW-direction onto the truncated Mesozoic basement and locally, Palaeozoic rocks (Lemcke, 1988, Freudenberger & Schwerd, 1996), forming an angular basal foreland unconformity, referred to as the forebulge unconformity by Allen et al. (1991)."

Specific comments	2	**page 11 lines 329-339:** In their discussion of stress field evolution, the authors claim that the lower normal fault array formed when the forebulge reached the study area. However, the forebulge should have passed the area already when the foreland unconformity formed. At any stage of the foreland basin, the forebulge should be positioned north of the pinchout of any wedge-shaped sedimentary body onlapping the forebulge. Lemcke (1988), and more recently Freudenberger & Schwerd (1996) published maps displaying pinchout-lines of most units of the foreland basin fill. These data should be respected, or it should be discussed, why these data are not regarded.	**agree**	As we acknowledge in point 1, the foreland unconformity represents a hiatus, primarily due to the passage of the forebulge across the foreland. Accordingly, the forebulge must have passed the study area before any deposition took place, meaning that it was already north of the Geretsried area by the Priabonian. Since the seismic data provide clear evidence that the lower fault array formed later - in the Rupelian, these faults must have originated already within the foredeep. We will adjust our interpretation in the revised manuscript in accordance with these considerations.
	3	**page 14 lines 417-426:** In their discussion of the Tilted Molasse, the authors suggest that thrusting in the study area is a direct consequence of flexure-related normal faults, and this thrusting controls tilting. However, on the larger scale of the Bavarian Foreland Basin, the width of the Tilted Molasse is controlled by the presence and depth of a triangle zone. The triangle zone is a rather continuous feature along the Alpine front, while the inherited normal faults are not. The triangle zone seems to be tied to the presence of coarse-grained deposits (see Ortner et al. 2015). Maybe this should be discussed here. Moreover, in the cross sections of Figs. 10 and 11, a Tilted Molasse seems to be absent. From a structural point of view, there is no triangle zone, that could have caused the very mild tilting seen in the seismic sections, and drag across the frontal thrust is not visible. Could it be that the apparent tilting is related to a velocity pull-up, caused by increasing horizontal compaction toward the Alpine front?	**agree partially**	We agree with the referee that on the larger scale of the Bavarian Foreland Basin the width of the Tilted Molasse is controlled by the presence of a triangle zone, which is possibly related to the lithological composition of the Late Oligocene to Middle Miocene sediments as presented by Ortner et al. (2015). We also agree with the referee that there is no large triangle zone in the cross-sections of Figs. 10 and 11. Our interpretation of these cross-sections confirms the existing interpretations by Schwerd and Thomas (2003), Thomas et al. (2006), and Ortner et al. (2015) for the eastern part of the Folded Molasse, according to which the deformation at the tip of the Alpine orogen is characterised by a simple overthrust without development of large triangle zones. However, although we do not observe a large triangle zone below the Kirchbichl Thrust in Fig. 11, there is a clear tilting of the upper Cenozoic sequence. We believe it formed due to distributed sub-seismic strain. Such "diffuse" deformation could possibly account for the area increase associated with tilting of higher levels while the lower beds maintain their dip towards the Alps. The average seismic velocities are indeed reported to increase towards the Alps, presumably due to an increase of lateral stress or lithological changes (Lohr, 1969, 1978; Greiner and Lohr, 1980). Nevertheless, we doubt that the tilting in Fig. 11 represents a velocity pull-up. If that were the case, we would then have observed a similar velocity pull-up in Fig 10, which depicts a seismic profile (on the right hand side) that was processed using the same workflow as the profile in Fig. 11. We assume that the diffuse deformation below the Kirchbichl thrust that possibly resulted in the tilting, as seen in the cross-section in Fig. 11, accommodated stain as the Alps advanced. In the Geretsried area, such strain was most probably accommodated by thrusting along the Geretrsied thrust fault. Hence, no diffuse sub-seismic deformation and consequent tilting occurred. According to the comments of the referee, in the revised manuscript we will emphasize that the tilting is controlled by a triangle zone on the regional scale, whereas frontal blind thrusting controls deformation on a more local scale.

Specific comments	4	The recognition of the Geretsried thrust is new. However, Müller (1975/1976) interpreted the structural geometry between the Darching and Miesbach wells with a structural geometry very similar to the present paper. This should be mentioned somewhere. It might have impact on the general interpretation, as it shows that the frontal structure is comparable over a rather broad area.	agree	We thank the referee for providing us information on the structure interpreted by Müller (1975/1976) between the Darching 1 and Miesbach 1 wells, ca. 25 km to the east of the Geretsried survey. This structure was previously unknown to us. It is indeed very similar to the Geretsried Thrust: it truncates the Mesozoic and dies out in the Chattian, splits into two branches and has a comparable vertical offset of ca. 250 m. However, it is unlikely that it represents the eastern continuation of the Geretsried Thrust, which, as has been shown in our paper, dies out rapidly to the east. We believe that this is an individual structure. It could have formed in the similar conditions to the Geretsried area, namely in the presence of flexure-induced faults. Müller (1975/1976) interprets a normal fault truncated by the thrust as antithetic (i.e. dipping forelandward). However, the interpretation of the seismic data in the Dietramszell-Bad Tölz prospect area (1960/1961) shows that faults in the proximity to the Miesbach well 1 are in fact dip hinterlandward (see attached depth map of the Tertiary basis). Futhermore, the N-S oriented profile 6 (see attachment) that runs close to the Miesbach 1 well, shows two antithetic normal faults (α21 and α14) that are vertically decoupled from one another. The upper α21 fault is overprinted by a frontal thrust. High-resolution seismic data, preferably 3D seismic data, would be required to investigate this structure in detail and conclude to which extent it is comparable to the Geretsried Thrust. As suggested by the referee, we will mention the frontal structure interpreted by Müller (1975/1976) in the discussion as follows: "In the GMB, ca. 25 km east of our study area, Müller (1975/1976) interprets a frontal thrust structure with a similar geometry to the Geretsried Thrust that also truncates an early-orogenic normal fault. The fact that the Geretsried Thrust dies out rapidly to the east suggests that the thrust interpreted by Müller (1975/1976) must have formed individually from the Geretsried Thrust."
Technical comments	5	**page 1 line 3:** "two normal fault arrays" instead of "two fault arrays".	agree	The upper fault array, as recognised in the seismic, consists of both normal and reverse faults. We therefore will modify the sentence as follows: "We recognise two fault arrays — lower normal faults and upper normal and reverse faults that are vertically separated by a clay-rich layer"
	6	**page 1 line 3:** "a clay-rich detachment horizon" – The detachment follows a stratigraphic layer, so it is rather a decollement.	agree	According to the Oxford Dictionary of Geology and Earth Sciences (2013), a detachment horizon is "a surface along which overlying rocks have moved in the course of deformation". We therefore agree with the referee that this term in the current context is misleading as we refer to a layer that decouples/separates two fault arrays and not to a surface. In the revised manuscript, we will simply refer to it as "a clay-rich layer".
	7	**page 1 line 3:** "A large-scale thrust" - This thrust has not a lot of offset - I would not call it "large-scale".	agree	We will refrain from calling the Geretsried Thrust "large-scale".
	8	**page 1 line 5:** "(1) initiation of the lower fault array" – better "(1) initiation of the lower normal fault array".	agree	We will correct the text as follows: "(1) initiation of the lower normal faults"
	9	**page 1 line 6:** "(2) development of the upper fault array" – better "(2) development of the upper normal fault array".	agree	We will correct the text as follows: "(1) development of the upper normal faults"
	10	**page 1 line 8**: "during the migration of the forebulge (phase 1), foredeep (phase 2)" – these phases have not been explicitely defined in the text; this should be done if this phrase is retained. But see also comments on these specific "phases".	agree	The sentence will not be retained as it is. While it holds true that the distinct faulting phases observed in the Geretsried area are governed by the change in the stress regime as the orogen propagated forwards, we recognize, however, that these phases took place entirely within the foredeep. We will modify this sentence as follows: "These distinct phases document the evolution of the stress field as the Alpine orogen propagated forward."

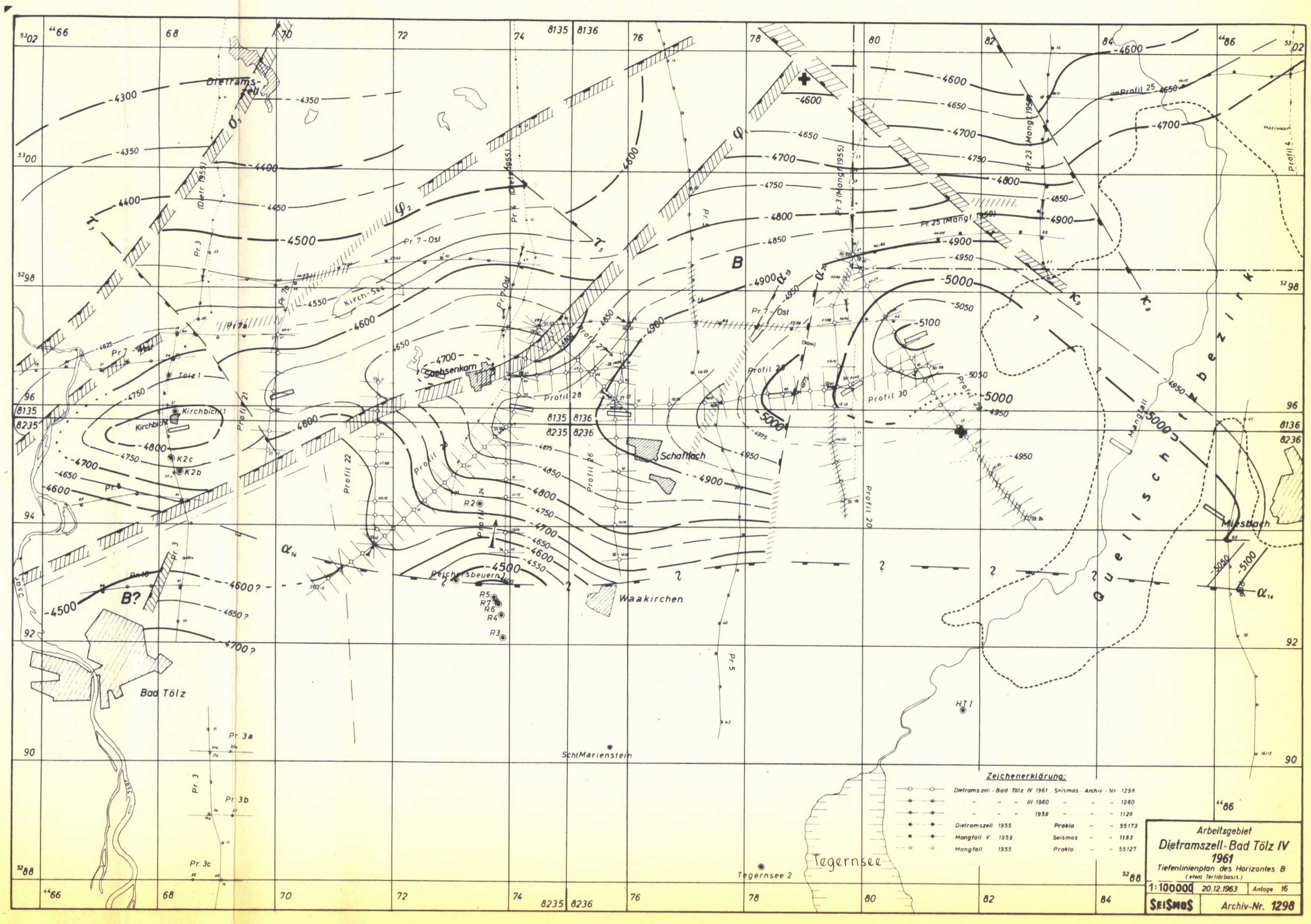
Technical comments	11	**page 2 lines 49-50:** “After a profound hiatus in sedimentation caused by the Late Cretaceous-Palaeocene contractional event as consequence of the change in the African plate motion” - This hiatus is the foreland unconformity (see e.g., Allen et al. 1991), or coincides with it. This should be mentioned (as in Figure 3). In most interpretations, the foreland unconformity marks the passage of forebulge rolling through the flexed European plate. To my knowledge there is no evidence of basement-involved thrusting in the Alpine foreland so close to the Alps in the sense of Kley and Voigt (2015).	**agree partially**	As we admit in point 1, the hiatus represented by the foreland unconformity is indeed related to the foreland forebulge. More specifically, the foreland unconformity must represent a composite hiatus due to the local basin inversion during the Late Cretaceous contractional event (Bachmann et al., 1987) and erosion within the transient forebulge from the Pliocene to Middle Eocene (Allen et al., 1997). The contractional deformation in the Late Cretaceous, to which Kley and Voigt (2015) refer, has been recorded by the upthusting of the Bohemian Massif and the Landshut-Neuötting High along the NW—SE wrench faults that delimit the Bohemian Massif and the Landshut-Neuötting High (Bachmann et al., 1987).
	12	**page 3 line 59:** “transgressive sandstones” - It remains unclear, what "transgressive" in this context means. You want to say, that sandstones, carbonates, shales and marls define a transgressive sequence? Or that "transgressive sandstones" overlie the foreland unconfromity? Clarify!	**agree**	We use the term "transgressive" to imply the sediments that were deposited in the course of marine transgression. We will rewrite the corresponding passage as follows to clarify this: "The foreland basin fill can be divided into Late Eocene ‘Pre-Molasse’ and Oligocene to Miocene ‘Molasse’ sequences (Sissingh, 1997). The deposition of the Pre-Molasse sequence occurred during an early marine transgression and is characterised by non-molasse sedimentation of shallow-marine Basal sandstone and Lithothamnion limestone (Sissingh, 1997; Zweigel, 1998). The overlying Molasse sequence accumulated in the course of two subsequent transgressive-regressive mega-cycles. Traditionally, the Molasse sequence is subdivided into, from older to younger; the Lower Marine Molasse (Untere Meeresmolasse, UMM), the Lower Freshwater Molasse (Untere Süßwassermolasse, USM), the Upper Marine Molasse (Obere Meeresmolasse, OMM), and the Upper Freshwater Molasse (Obere Süßwassermolasse, OSM) (Figs. 1c and 2; von Guembel, 1861). The deposition of the UMM started in the Early Oligocene (Rupelian), during a late marine transgression, as the basin deepened rapidly (Bachmann and Müller, 1982; Sissingh, 1997). It is characterised by the widespread accumulation of pelitic sediments — Fisch shale, Light marly limestone, banded marl, and Rupelian clayey marl (Kuhlemann and Kempf, 2002). Subsequent marine regression in the Mid-Oligocene (Rupelian/Chattian) resulted in deposition of littoral Baustein beds (Diem, 1986; Kuhlemann and Kempf, 2002)."
	13	**page 3 line 60:** “shallow-marine to coastal” - probably better "littoral"	**agree**	We will change the text accordingly. Please see point 12.

Technical comments	14	**page 3 lines 65-67:** "This suggests that the foreland plate was not affected by further flexure and that the marine transgression during the deposition of OMM was the result of lower sediment input into the basin (Zweigel, 1998; Kuhlemann and Kempf, 2002; Ortner et al., 2015)." - Foreland flexure ended in the eastern part of the basin; the western half continued to subside. Your study area is transitional, but the base of the OMM is still slightly flexed in the TRANSALP section across the foreland (see, e.g., the cross sections of Abele et al. 1955).	**agree**	After having examined the cross sections of Abele et al. (1955), we admit that the foreland flexure must have continued throughout OMM deposition in the transitional area between the western and eastern German Molasse Basin, as the base of the OMM indeed dips shalowly towards the south in the cross sections 26 and 27 of Abele et al. (1955). We will modify the corresponding passage accrodigly, as follows: "The second transgressive-regressive megacycle began in the Early Miocene (Burdigalian) with transgression of OMM marls over the Aquitanian-Burdigalian unconformity (Fig. 3; Lemcke, 1988; Zweigel et al., 1998). Although the foreland flexuring was ongoing in the GMB during deposition of the OMM (Ortner et al., 2015), the foreland subsidence significantly decreased already with the onset of OMM deposition (Zweigel et al., 1998). Marine conditions were established despite decreasing subsidence due to a decrease in sediment supply into the basin accompanied by the relief reduction in the Eastern Alps (Zweigel et al., 1998; Kuhlemann and Kempf, 2002). By the beginning of the mid-Miocene (Langhian), when deposition of the OSM had started, continental conditions prevailed across the entire GMB (Lemcke, 1988).."
	15	**page 3 line 70:** "Alpine front" - The Alpine front is a line, that cannot incorporate volume. "Alpine wedge" would be more correct.	**agree**	We will change the text accordingly.
	16	**page 3 line 234:** "Its stratigraphically higher upper branch" - How can a thrust branch be "stratigraphically higher"? This would only be possible at a specific location, where you have an upper and lower thrust, whatever stratigraphy is.	**agree**	We will rewrite this as follows: "Its upper branch dips…"
	17	**page 8 line 240**: "At the foot of" – Below?	**agree**	We agree that this wording might be unclear. We will therefore change it to "In the footwall of the Kirchbichl Thrust…".
	18	**page 11 line 321:** "This implies a forward-propagating Alpine thrust system, which is most likely." - Yes, but Ortner et al. 2015 showed that the thrusts of the Subalpine Molasse are hinterland breaking, where a clear sequence can be recognized. Maybe the Geretsried thrust marks the turnaround from foreland- to hinterland-breaking.	**agree**	We acknowledge the interpretation of Ortner et al. 2015 in that the thrusts of the Subalpine Molasse are hinterland-breaking. The fact that the Geretsried Thrust is the foremost thrust of the Alpine thrust system indeed does not imply that it is the youngest thrust. We agree that it could mark the turnaround from foreland- to hinterland-breaking. Unfortunately, we lack seismic observation of the growth strata above the thrust-related Geretsried Fold to put a temporal constrain on the thrust activity and thus confirm this proposition. In the revised manuscript, we will remove the following sentence: "This implies a forward-propagating Alpine thrust system, which is most likely." Also, in the preceding sentence - "However, we hypothesise that the Geretsried thrust was contemporaneous with or succeeded the frontal thrusts of the Folded Molasse, because it is rooted below the Folded Molasse and is thus kinematically related to the frontal thrusts." we will reduce our interpretation of timing to "contemporaneous".
	19	**page 11 line 336:** "lower fault activity" – better "activity of the lower fault array"	**agree**	We will change the text accordingly.

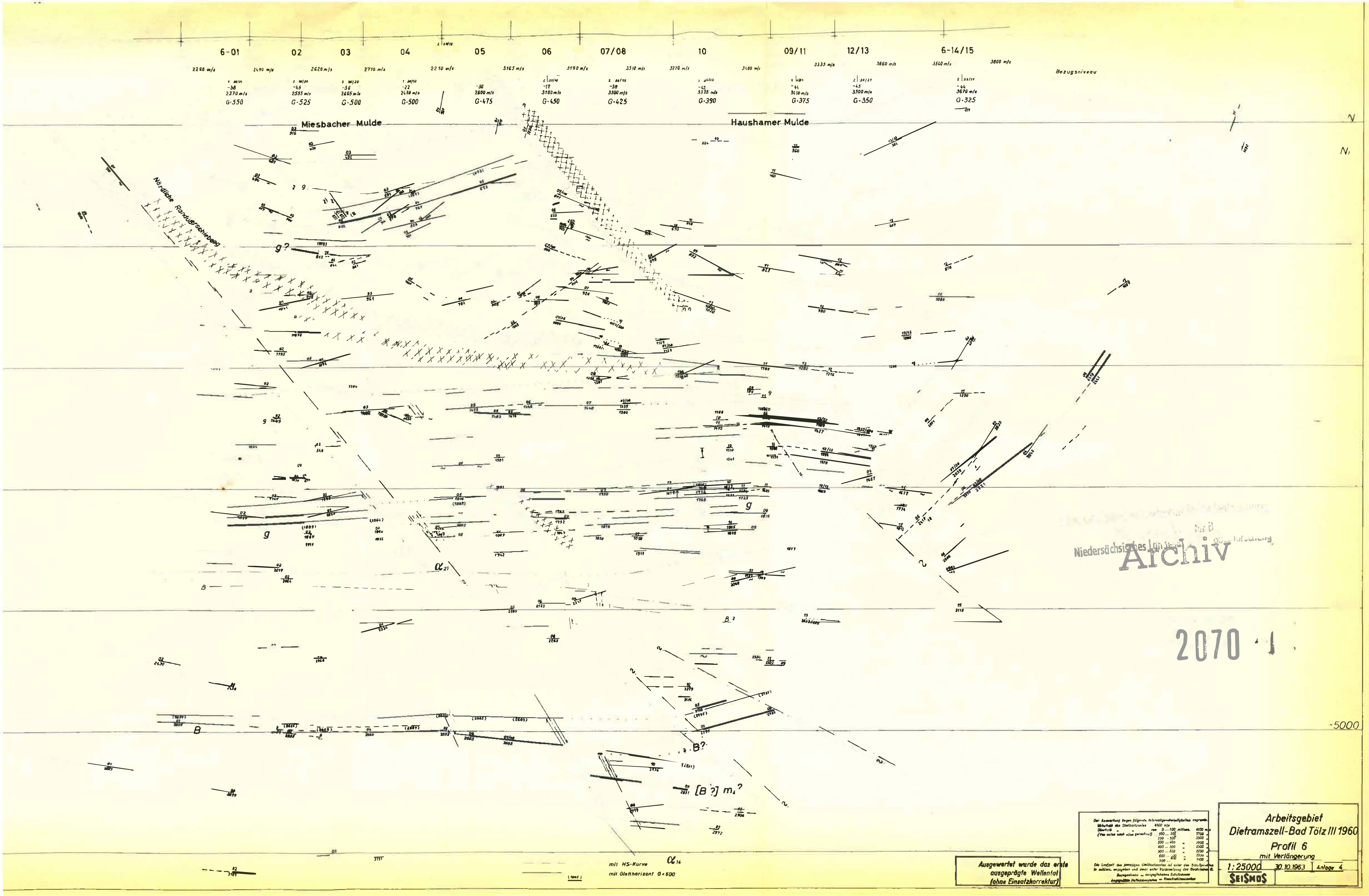
Technical comments	**20**	**page 11 line 337:** “initiated as the forebulge, the region of maximum flexure, reached the Geretsried area in the early Rupelian” - This is difficult. When the forebulge is related to the foreland unconformity (depicted in Fig. 3) and the normal faults are related to the forebulge, then normal faulting should have initiated during continental conditions and erosion. However, fault activity might have extended into the Rupelian, when the Alpine wedge still moved onto the European plate rapidly (see e.g., Pfiffner, 1986), and flexure was ongoing.	**agree**	Considering our response to the comments of the referee in points 1 and 2, we conclude that the normal faulting of both fault arrays must have occurred entirely within the foredeep during the foreland flexuring. Below is our revised interpretation of the faulting phases in the Rupelian and the Chattian. "The longitudinal strike of the lower and upper faults, with respect to the Alpine orogenic front, implies that they formed due to the flexure-induced deformation on the foredeep slope. It has been recognized that during foreland flexuring, the upper part of the bending plate experiences extension and the lower part compression, and a central horizon is neutral (Turcotte and Schubert, 1982; Price and Cosgrove, 1990). Within the region of maximum flexure (i.e., forebulge), elastic bending facilitates an extensional stress field with an effective minimum stress oriented perpendicular to the trend of the foredeep (Bradley and Kidd, 1991; Bachmann and Müller, 1992; Londoño and Lorenzo, 2004; Langhi et al., 2011). As the syn-orogenic load within the foredeep increases towards the orogen, the sub-vertical maximum principle stress increases as well. Consequently, normal faults formed in a basinward position with respect to the region of maximum flexure, striking parallel to the foredeep axis. The first faulting phase initiated in the early Rupelian as evidenced from the seismic data. At this time, the GMB was characterized by a limited sediment supply (Zweigel et al., 1998) and, hence, low magnitudes of the sub-vertical stress. The lower normal faulting must have occurred in the distal foredeep, close to the region of maximum flexure, where the magnitude of the horizontal stress component oriented in the direction of the orogenic advance was still minor. As the Alpine orogen moved forward, the magnitude of the horizontal stress component increased, which resulted in termination of normal faulting in the late Rupelian. The second faulting phase occurred in the Late Oligocene (Chattian). Zweigel et al. (1998) document a drastic increase of sedimentation rates at this time due to the increase of the topographic relief in the Alpine orogen. A rapid thickening of the sedimentary load must have resulted in an increase of the vertical stress that eventually exceeded horizontal compression, resulting in renewed normal faulting. The existence of a sub-vertical maximum stress in the Late Oligocene—Early Miocene is also implied by the build-up of overpressure in the Rupelian sequence that is related to high sedimentation rates during this time (Müller et al., 1988; Müller and Nieberding, 1996)."
	21	**page 11 line 343:** “By the Chattian times, the foreland foredeep approached the study area,” - I do not understand. The complete foreland sequence is in the foreland foredeep. The thickness of all units below the OMM diminishes toward the forebulge to the N (see lines 62-68, and references cited there; see also cross sections of Abele et al. 1955).		
	22	**page 11 line 344:** “This” - To which part of the preceding sentence does "this" relate? Neither possibility makes any sense - rapid sedimentation cannot be caused by the approach of the foredeep (see remark there), and not caused by the thickness increase (being an effect and not a cause). Reformulate and clarify. Probably the arguments in this whole paragraph need to be reconsidered, reformulated and reordered.		
	23	**page 12 lines 346-347:** “Increasing sedimentary load towards the orogen produced an increase in the vertical stress magnitude (Drews et al., 2018) and therefore favoured normal faulting.” - See last remark. This information needs to be given before you argue that pressure distribution may support your idea.		

Technical comments	24	**page 14 Lines 422-423:** "We postulate that the varying amplitude of the tilted zone from west to east must be controlled by the occurrence of early-orogenic normal faults that facilitate thrusting. In the Geretsried area and south of it, the Geretsried Thrust accommodated shortening and thereby prevented large-scale folding in front of the propagating Alpine thrust sheets." - (1) In the absence of available seismic data in the area, I put the northern limit of the Tilted Molasse at the northern limit of tilting as shown in the cross sections of Abele et al. (1955). (2) On the scale of the Bavarian Molasse, the width of the Tilted Molasse is mostly controlled by the presence and depth of a triangle zone. The triangle zone is a rather continuous feature along the Alpine front, while the inherited normal faults are not. The triangle zone seems to be tied to the presence of coarse-grained deposits (see Ortner et al. 2015). Maybe this should be discussed here. (3) In the cross sections of Figs. 10 and 11, a Tilted Molasse seems to be absent. From a structural point of view, there is no triangle zone, that could have caused the very mild tilting seen in the seimic sections, and drag across the frontal thrust is not visible. Could it be that the apparent tilting is related to a velocity pull-up, caused by increasing horizontal compaction toward the Alpine front?	**agree partially**	(1) The seismic cross-section in Fig. 10 does not confirm interpretation by Abele et al. (1955), shown in the respective profile 7, with regard to the shape of the Tilted Molasse. (2) We agree that the Tilted Molasse is probably controlled by the triangle zone on the scale of the Bavarian Molasse. (3) We clearly see tilting in the cross-section of Fig. 11, below the Kirchbichl Thrust. We believe it formed due to the distributed sub-seismic strain that can account for the area increase associated with tilting of higher levels while the lower beds maintain their dip towards the Alps. The average seismic velocities are indeed reported to increase towards the Alps, presumably due to an increase of lateral stress or lithological changes (Greiner and Lohr, 1980*). Nevertheless, we doubt that the tilting in Fig. 11 represents a velocity pull-up. If this were the case, we would then have observed a similar velocity pull-up in Fig 10, which depicts a seismic profile (on the right hand side) that was processed using the same workflow as the profile in Fig. 11. *Reference: Greiner, G., Lohr, J., 1980. Tectonic stresses in the Northern Foreland of the alpine system measurements and interpretation. In: Scheidegger, A.E. (Ed.), Tectonic Stresses in the Alpine-Mediterranean Region. Rock Mechanics/Felsmechanik/Mécanique des Roches. Springer, Vienna, Austria.
	25	**page 14 lines 423-425:** "In the Geretsried area and south of it, the Geretsried Thrust accommodated shortening and thereby prevented large-scale folding in front of the propagating Alpine thrust sheets." - Keep in mind that there is almost no offset across this thrust. If there would be a few kilometers of offset, then there would be folding for sure.	**agree**	By large-scale folding we mean large-wavelength tilting of the Molasse sediments. There is still a fault-related folding in the hangingwall of the Geretsried Thust.
	26	**page 15 line 444**: "Walsch" – It is "Walsh"	**agree**	We will correct the misspelling.
	27	**page 15 line 453**: "Walsch" - Again, "Walsh"!		
Figures	28	**Figure 2**: Strange that all normal faults die out in the deepest layer. Distinguish wells and faults graphically!	**agree**	The schematic cross-section in Figure 2 depicts only basement-rooted faults that were interpreted in the TRANSALP seismic profile. We now distinguish the wells from the faults graphically using different symbols.

Figures	**29**	**Figure 3:** In the column “Local stratigraphy”: a. “Laminated marl” instead of “Laminated barl” b. Chattian sandstone: A significant part of these Chattian sands, and the "Aquitanian beds" are in fact an alternation of sands, carbonates, coal and shales, and has been termed the Cyrena beds, a brackish facies transitional between the continental USM and the marine UMM. This should probably be mentioned somewhere. c. Rupelian clay Banded marl Heller Mergelkalk Fish shale mixture of German and English here. The German terms are "Heller Mergelkalk", "Bändermergel" and "Tonmergel". Either translate all of them, or use the German terms consistently. d. Tonmergel would be Rupelian clayey marl in English, 'Rupelian clay' is misleading.	**agree**	**a.** We will correct the typo in "Laminated marl". **b.** In the revised figure, we will refer to the "Chattian beds" as part of the Lower Brackish Molasse (UBM) instead of the "Chattian sandstone" as part of the USM. In the revised text, in chapter "Geological Setting", we will add the following sentences to explain what is meant by "Chattian and Aquitanian beds": "In the Late Oligocene to Early Miocene (Chattian and Aquitanian), continental conditions were established in the western basin part, and thus the deposition of the USM, while to the east of Munich marine sedimentation continued in the deeper part of the basin. The central GMB was dominated by coastal to shallow-marine settings, resulting in accumulation of the transitional Lower Brackish Molasse (Untere Brackischmolasse, UBM). It is composed of the Chattian and Aquitanian beds, termed the Cyrena beds, — an alternation of calcareous sandstones, marlstones, limestones, and coal (Freundenberger and Schwerd, 1998)." **c.** We will use the English translations of the lithological units only. The German term "Heller Mergelkalk" will be changed to "Light marly limestone". **d.** We will use the term "Rupelian clayey marl" instead of the term "Rupelian clay" everywhere in the revised text.
	30	**Figure 18:** You might want to color negative and positive throw differently	**agree**	We will change the colour of the negative throw to distinguish it from the positive throw.
	31	**Figure 20:** lower row of sketches: How can the basement fold be with such a short wavelength? I really have problems imagining this. In such a scenario, folding of the basement would be one of the controlling factors. This should be mentioned and discussed in the text. In the seismic lines there seems to be less folding.	**agree**	The folding in the basement cannot indeed be of such a short wavelength. In this respect, the lower sketches misrepresent the reflection configuration shown in the seismic close-ups. We will modify the sketches accordingly.



Attachment 1: Depth map of the Tertiary basis



Attachment 2: Profile 6. For location see attachment 1